

Vulvodynia

Efficacy of Physiotherapy for Treating Vulvodynia: A Systematic Review

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Objectives: We set out to assess the efficacy of physiotherapy for vulvodynia. **Results:** A total of 2,274 articles were retrieved. Seven studies met the criteria and were included in a systematic review, which included a total of 477 patients. The interventions included were electromyography biofeedback (n = 2), transcutaneous electrical nerve stimulation (n = 1), transcranial direct current stimulation (n = 1), low-intensity shockwave (n = 1), physiotherapy treatment (n = 1), and pelvic floor exercise with behavioral modification (n = 1). All studies evaluated pain reduction, 5 evaluated sexual function, and 2 evaluated quality of life. All interventions were effective for the main outcomes; only the transcranial direct current stimulation intervention showed no significant difference when compared with the placebo or sham group. Three studies presented a high risk of bias due to the lack of blinding. **Conclusions:** The studied interventions (electromyography biofeedback, transcutaneous electrical nerve stimulation, shockwave, physiotherapy, and pelvic floor exercise) seem to improve pain, sexual function, and quality of life. However, the heterogeneity of the studies prevented meta-analysis. In addition, well-designed trials are needed to improve the certainty of this evidence.

Individualized multidisciplinary therapy for vulvodynia

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Objective: The main objective of this review was to develop strategies for individualizing multidisciplinary therapy for vulvodynia. **Results:** Based on data from 55 relevant studies, we developed models of individualized multidisciplinary therapy targeting groups of women less responsive to

multidisciplinary therapy (characterized by women with higher vulvar pain intensity, impaired sexual functioning, and vulvodynia secondary subtype) and to physical therapy, as an isolated treatment (characterized by women with increased pelvic floor muscle tone and vulvodynia primary subtype). Each individualized multidisciplinary therapy model comprises three components: psychotherapy, medical care, and physical therapy. These components provide distinct therapeutic modalities for distinct subgroups of women with vulvodynia; the women subgroups were identified according to the characteristics of women, the disease, partners, and relationships. Additionally, for women with provoked vestibulodynia who exhibit less benefits from vestibulectomy (such as those with higher levels of erotophobia, greater vulvar pain intensity, and the primary subtype) and encounter resistance to individualized multidisciplinary therapy, we suggest additional conservative treatments before performing vestibulectomy. **Conclusion:** Our study is a pioneer in the development of models that allow the individualization of multidisciplinary therapy for vulvodynia and represents a significant advance in the clinical practice of gynecologists, physiotherapists, and psychologists.

Not all lasers are the same: a scoping review evaluating laser therapy for vulvodynia

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Introduction: Lasers are commonly used for treating various vaginal/vulvar conditions. To date, there is to our knowledge no available literature review on the effects of different types of lasers for the treatment of women with vulvodynia, a condition that causes chronic pain in the vulvar area.

Objectives: We sought to review the literature and summarize the existing published evidence regarding the effects of lasers for the treatment of women with vulvodynia. **Results:** Eight studies investigating laser therapy were included in the analysis: 1 randomized controlled trial, 5 before-after studies, 1 nonrandomized intervention study, and 1 case report. Several types of laser therapies were identified, ranging from mild noninvasive photobiomodulation to more invasive ablative procedures. Of the 6 studies that included pain outcomes, 3 studies showed statistically significant improvements from baseline to follow-up, and 3 demonstrated a reduction in pain from subjectively interpreted data. Similarly, each of the 2 studies investigating sexual function also reported an improvement (based only on subjective interpretation). Of the 2 studies with a comparison group, neither study was adequately powered to detect between-group differences. Furthermore, 57%-78% of participants reported improvement, with 1 study showing a greater statistically significant improvement in the low-level laser therapy patient group compared to the sham laser group. Outcomes and adverse events varied depending on the type of laser used. **Conclusions:** Although these studies demonstrated some benefits of laser therapy for the treatment of vulvodynia, these findings should be interpreted with caution given the scarcity of the included studies that were robust and sufficiently powered. Future research should focus on conducting well-designed randomized controlled trials to evaluate the efficacy of different types of lasers in the treatment of vulvodynia.

Use of botulinum toxin in aesthetic medicine and gynaecology: current approaches, controversies, and future directions

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This review looks at the use of botulinum toxin in the gynaecological field with the aim of determining what needs to be further investigated to achieve a standardized application. Numerous studies have been conducted to explore how botulinum toxins (BoNT) can be applied, and it is becoming popular for treating various disorders such as chronic pelvic pain, vestibulodynia, and vaginism. However, the exact dosage and ideal location for injections still need to be clarified. The objective of this study is to point out which aspects need to be more carefully studied to ensure a consistent use of BoNT in gynaecology.

Exploring venlafaxine effects on chronic vulvar pain: Changes in mood and pain regulation networks

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The etiology of idiopathic pain conditions, such as Provoked vulvodynia (PV), is multifactorial. The efficiency of venlafaxine, serotonin-noradrenaline reuptake inhibitor (SNRIs) in modulating vulvar pain led to the hypothesis that PV might involve central mechanisms. Here, we investigate whether vulvar pain is associated with gene-expression changes in mood, stress and pain systems, including amygdala (Amg), medial prefrontal cortex (mPFC), and periaqueductal gray matter (PAG). Additionally, we examined the analgesic and anxiolytic effects of venlafaxine. We found that the development of chronic vulvar pain in an animal model of PV is associated by overexpression of genes related to neuronal-activity and neuroinflammation in the Amg, mPFC, and PAG. Additionally, changes in the expression of GABA and serotonin synthesis, and reuptake were noted in the Amg and mPFC. Unsurprisingly, anxiety-like behavior and emotional-disorder were observed in rats with chronic vulvar pain. Nevertheless, treatment with venlafaxine (37.5 mg/kg) for one month significantly improves the vulvar hypersensitivity, as well as reduces the anxiety level. More critically, the long-term gene expression adaptation in serotonin receptor and synthesis, GABA synthesis, neuroplasticity, and neuroinflammation in the Amg, mPFC, and PAG, were modulated by venlafaxine in rats with vulvar pain. Our findings suggest that vulvar allodynia induced by inflammation might be associated with gene expression changes in brain areas that are involved in mood, stress and pain regulation. These changes probably play a role in central sensitization, and anxiety. Strikingly, enhancing the activity of serotonin and noradrenaline via venlafaxine treatment in rats with vulvar pain induces analgesic and anxiolytic effects.

Nutritional and metabolic aspects related to vulvodynia: What do we really know?

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Objectives: Vulvodynia is an emerging health problem, still insufficiently studied, that causes a significant reduction in quality of life in many women and individuals assigned female sex at birth. Little is known about the effects of diet and metabolic disorders on this condition. The objective of this study was to review currently available evidence on the diet and the nutritional and metabolic status of patients affected by vulvodynia. **Methods:** Published articles were systematically searched in the PubMed, Scopus, and Web of Science databases. **Results:** The few available studies that reported data on patients' body mass index (BMI) described a BMI within the normal range in most patients affected by vulvodynia, showing no difference or a slightly lower BMI with respect to control individuals. Data on

the relationship between metabolic diseases and vulvodynia are lacking. Regarding nutrition, the few available data do not support the prescription of a low-oxalate diet in women with vulvodynia. To date, studies on other dietary behaviors are also lacking. **Conclusions:** This review emphasizes-for the first time, to our knowledge-the lack of data and the importance of conducting prospective studies investigating the nutritional and metabolic aspects related to the onset, maintenance, and therapy of vulvodynia.

Preferred physical characteristics of lidocaine thin film for women with vestibulodynia

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Introduction: Vestibulodynia (VBD) is the most common cause of sexual pain in the United States, affecting up to 15% of reproductive-aged women during their lifetime with limited treatment options. The purpose of this study was to describe ideal physical characteristics of a vulvar film designed for insertional sexual pain in sexually active women with VBD. **Results:** One hundred and sixteen women were recruited, and twenty women were enrolled. The mean age for the participants was 33.3 years. Most women were educated with at least some college (93%), White (78.6%), married (75%), and had income greater than \$100,000 (50%). Analysis of the focus group discussions identified five common topics addressed by participants: desired loaded medication, film size, film shape, film flexibility, and ease and accuracy of use. Concerns across topics included comfort, sexual spontaneity, and efficacy. Interest in loading the device with other acceptable medications or combination with lidocaine was independently noted in 2/6 (33%) of the focus groups. **Discussion:** Mucoadhesive vulvar thin films may be an acceptable drug delivery system for insertional sexual pain for women with VBD.

Is Vulvodynia Associated With an Altered Vaginal Microbiota?: A Systematic Review

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Introduction: Vulvodynia is defined as vulvar pain of at least 3 months' duration, without clear identifiable cause, which may have potential associated factors. It can have a significant impact on women's quality of life due to a combination of physical pain, emotional distress, and limited treatment options. Despite affecting a considerable number of women worldwide, the causes and underlying mechanisms of vulvodynia remain poorly understood. Given the recognized association of the vaginal microbiota with various gynecologic disorders, there has been growing interest in exploring the potential role of the vaginal microbiota in the etiology of vulvodynia. This systematic review aims to evaluate the current literature on the association between the vaginal microbiota and vulvodynia. **Results:** A total of 8 case-control studies were included, the quality of which was assessed using the Newcastle-Ottawa Scale. Data extraction and synthesis were performed using a standardized protocol. In most studies, no major differences were found between the vaginal bacterial composition of women with vulvodynia and that of controls. No specific bacterial taxa were consistently associated with vulvodynia. The relationship between vaginal microbiota diversity and vulvodynia remains to be fully understood. **Conclusions:** The role of vaginal microbiota in vulvodynia, if any, remains unclear. Because

of the cross-sectional nature of the included studies, it is not possible to make any causal inferences. Further research, using larger and more diverse study populations and advanced sequencing techniques, is necessary to gain a better understanding of the potential relationship between the vaginal microbiota and vulvodynia.

Chronic Pelvic Pain

Are pelvic pain and increased pelvic floor muscle tone associated in women with persistent noncancer pelvic pain? A systematic review and meta-analysis

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Background: The association between pelvic pain and pelvic floor muscle (PFM) tone in women with persistent noncancer pelvic pain (PNCPP) is unclear. **Aim:** To synthesize the evidence of the association between pelvic pain and PFM tone in women with PNCPP. **Outcomes:** Pelvic pain measures (intensity, threshold, and frequency) and resting PFM tone in women with PNCPP, as evaluated by any clinical assessment method or tool. **Results:** Twenty-four studies were included in this review. The presence of pelvic pain was significantly associated with increased PFM tone as assessed by digital palpation (OR, 2.85; 95% CI, 1.66-4.89). Pelvic pain intensity was inversely but weakly associated with PFM flexibility when evaluated through dynamometry ($r = -0.29$; 95% CI, -0.42 to -0.17). However, no significant associations were found between pelvic pain and PFM tone when measured with other objective assessment methods. **Clinical implications:** Pelvic pain and increased PFM tone may not be directly associated; alternatively, a nonlinear association may exist. A range of biopsychosocial factors may mediate or moderate the association, and clinicians may need to consider these factors when assessing women with PNCPP. **Strengths and limitations:** This review was reported according to the PRISMA guidelines. All possible findings from relevant theses and conference abstracts were considered in our search. However, nonlinear associations between pelvic pain and increased PFM tone were not assessed as part of this review. **Conclusion:** Pelvic pain may be linearly associated with increased PFM tone and decreased PFM flexibility when measured with digital palpation or dynamometry; however, this association was not observed when other aspects of PFM tone were assessed through objective methods. Future studies are required using robust assessment methods to measure PFM tone and analyses that account for other biopsychosocial factors that may influence the association.

Neuromodulation for the management of chronic pelvic pain syndromes: A systematic review

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Background: Chronic pelvic pain is a burdensome condition that involves multiple medical sub-specialties and is often difficult to treat. Sacral stimulation for functional bladder disease has been well established, but little large-scale evidence exists regarding utilization of other neuromodulation techniques to treat chronic pelvic pain. Emerging evidence does suggest that neuromodulation is a

promising treatment, and we aim to characterize the use and efficacy of such techniques for treating chronic pelvic pain syndromes. **Results:** A total of 50 studies were included in this review, three of which were randomized controlled trials, and the remaining were prospective and retrospective case series. The range of pelvic pain conditions treated included interstitial cystitis, peripheral neuralgia, pudendal neuralgia, gastrointestinal pain, urogenital pain, sacroiliac joint pain, and visceral chronic pelvic pain. We reported on outcomes involving pain, functionality, psychosocial improvement, and medication reduction. **Conclusions:** Neuromodulation is a growing treatment for various chronic pain syndromes. Peripheral nerve stimulation was the least studied form of stimulation. Posterior tibial nerve stimulation appears to offer short-term benefit, but long-term results are challenging. Sacral nerve stimulation is established for use in functional bladder syndromes and appears to offer pain improvement in these patients as well. Dorsal root ganglion stimulation and spinal cord stimulation have been used for a variety of conditions with promising results. Further studies of homogeneous patient populations are necessary before strong recommendations can be made at this time, although pooled analysis may also be impactful.

Endometriosis-Related Chronic Pelvic Pain

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Endometriosis, which is the presence of endometrial stroma and glands outside the uterus, is one of the most frequently diagnosed gynecologic diseases in reproductive women. Patients with endometriosis suffer from various pain symptoms such as dysmenorrhea, dyspareunia, and chronic pelvic pain. The pathophysiology for chronic pain in patients with endometriosis has not been fully understood. Altered inflammatory responses have been shown to contribute to pain symptoms. Increased secretion of cytokines, angiogenic factors, and nerve growth factors has been suggested to increase pain. Also, altered distribution of nerve fibers may also contribute to chronic pain. Aside from local contributing factors, sensitization of the nervous system is also important in understanding persistent pain in endometriosis. Peripheral sensitization as well as central sensitization have been identified in patients with endometriosis. These sensitizations of the nervous system can also explain increased incidence of comorbidities related to pain such as irritable bowel disease, bladder pain syndrome, and vulvodynia in patients with endometriosis. In conclusion, there are various possible mechanisms behind pain in patients with endometriosis, and understanding these mechanisms can help clinicians understand the nature of the pain symptoms and decide on treatments for endometriosis-related pain symptoms.

Amsterdam complex pelvic pain symptom scale with subscales: Based on a Norwegian translation, psychometric assessment and modification of the Amsterdam hyperactive pelvic floor scale

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Introduction: Women with an abnormally high pelvic floor muscle tone may have a clinical presentation that is complex, involving urinary, anorectal and/or sexual dysfunction, genital/pelvic pain and psychological distress. The Amsterdam Hyperactive Pelvic Floor Scale (AHPFS) is a Dutch 30-item condition-specific self-report questionnaire developed to measure these complex pelvic pain symptoms.

The aim of this study was to translate the Dutch version into Norwegian, to assess the psychometric properties, and to present a valid factor structure. **Results:** Content/face validity demonstrated that the questionnaire was perceived as relevant, comprehensive and understandable. Some adjustments in the instructions of the questionnaire and the response categories were made, which lead to the Norwegian translation ACPPS-30. Assessment of the questionnaire's dimensionality revealed a five-factor structure similar to the original Dutch Amsterdam Hyperactive Pelvic Floor Scale (AHPFS) but without the Urinary tract infection factor and seven other items. The translated and modified ACPPS-16 total score and subscales correlated as expected with scales measuring similar conditions. Test-retest reliability demonstrated good stability for scales (intraclass correlation coefficient 0.85-0.93) and single items (weighted kappa values from 0.34 to 0.90). **Conclusions:** A modified Norwegian version ACPPS-30 was presented, in addition to a shorter version with only 16 of the translated items distributed among five factors similar to the original Dutch version (ACPPS-16). Both versions proved to be valid, stable and reliable tools to investigate complex pelvic pain symptoms possibly due to an abnormally high-toned pelvic floor muscle.

Medical Mistrust and Healthcare Seeking Among Women of Color with Chronic Vulvovaginal Pain

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Background: Chronic vulvovaginal pain (CVVP), an umbrella term encompassing several gynecological pain conditions (e.g., vulvodynia, vaginismus), has a prevalence rate of 7-8% in the USA and is characterized by considerable diagnostic delay in patient experience research. Furthermore, current research in this area focuses largely on the experiences of white women, while the experiences of women of color are underrepresented. **Results:** Using the suspicion subscale of the Group-Based Medical Mistrust Scale, we found significant racial and ethnic differences in medical suspicion scores, with non-Black Hispanic/Latinx women reporting the highest suspicion scores and non-Hispanic/Latinx Black women reporting the lowest scores. Racial differences disappeared, however, after examining medical mistrust and perceived discrimination as predictors for various healthcare outcomes related to the journey to diagnosis and healthcare avoidance behaviors. We found that while suspicion was a reliable predictor of increased diagnostic delay and healthcare avoidance in many contexts, the results for perceived discrimination were more varied, suggesting considerable nuance in the relationship between medical mistrust, perceived discrimination, and healthcare seeking outcomes.

Conclusion: These findings point to shared experiences of medical mistrust via suspicion that broadly characterize women of color's experiences in seeking CVVP-related care-future research is needed to examine nuances within racial and ethnic groups regarding their healthcare seeking experiences in the CVVP context.

The role of psychosocial factors in the interprofessional management of women with chronic pelvic pain: A systematic review

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Introduction: Chronic pelvic pain (CPP) is a common pain disorder in women associated with negative biopsychosocial consequences. The multifactorial etiology and maintaining aspects of CPP logically require an interprofessional treatment approach. However, the effects of interprofessional treatment strategies on psychosocial factors remain unclear. The study aims to investigate how interprofessional therapy helps to treat psychosocial factors in women with CPP. The systematic review summarizes the current evidence of interprofessional treatment in women with CPP. **Results:** Five studies with a total sample size of n = 186 women were included, three of them were uncontrolled retrospective before-after chart review. Only one study used a randomized controlled design, the other study used a non-randomized controlled group. The studies' methodological quality is adequate with perspective of study design. The multiprofessional treatment approaches used in the studies differed with regard to professions involved, therapy methods, and modalities. Psychosocial outcome measures were pain (five studies), depressive symptoms (three studies), and anxiety symptoms (four studies).

Conclusions: Although interprofessional treatment strategies for women with CPP are recommended in existing guidelines, available evidence is scarce and does not allow for identification of the best interprofessional treatment approach. The effect on psychosocial factors remains unclear. More research is needed determining the best practice interprofessional treatment option for women with CPP.

Persistent Genital Arousal Disorder

Selective serotonin reuptake inhibitors, post-treatment sexual dysfunction and persistent genital arousal disorder: A systematic review

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Purpose: Adverse effects of selective serotonin reuptake inhibitors (SSRIs) on sexual function have been an important area of research for many years. However, the duration of SSRI-associated sexual adverse effects, and their possible persistence after treatment discontinuation, is still uncertain. The aims of the current systematic review were first to identify existing evidence of sexual dysfunction following SSRI discontinuation, and to provide an account of reported symptoms and proposed treatment options; and second, to establish whether current literature allows accurate estimates of the prevalence of such sexual dysfunction. **Results:** Overall, two retrospective interventional studies, six observational studies and 11 case reports were judged eligible for inclusion. It was not possible to determine reliable estimates of prevalence. Similarly, a cause-effect relationship between SSRI exposure and persistent sexual impairment could not be ascertained. Nonetheless, the potential for continued sexual disturbances despite discontinuation could not be entirely ruled out. **Conclusions:** There is a need to investigate a possible dose-response relationship between SSRI exposure and persistent sexual adverse effects. Treatment options for persistent dysfunctions remain limited, but novel therapeutic approaches may be required in order to address an otherwise neglected need for sexual well-being.

Ischiorectal Approach to Cryoablation of the Pudendal Nerve Using a Handheld Device: A Report of Two Cases

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The pudendal nerve is situated deep within the pelvis and is a challenge to target for pain interventions due to the theoretical risk of incontinence with manipulation. The management of pudendal neuralgia using cryoablation is currently limited as it has historically required computed tomography (CT) guidance by interventional radiologists. Through this report, we describe a safe, reproducible, ischiorectal fossa approach to pudendal nerve cryoablation with a handheld device utilizing anatomical landmarks, nerve stimulation, and fluoroscopy. Two patients with longstanding pelvic pain and positive response to diagnostic pudendal nerve blocks underwent bilateral cryoablation of the pudendal nerves. This procedure was performed with the patients in prone positioning and percutaneous insertion of a cryoablation probe medial to the ischial tuberosity and lateral to the rectum. Correct positioning on the pudendal nerve was achieved with nerve stimulation eliciting visible anal sphincter contraction, and fluoroscopic imaging of the probe relative to the ischial spine. The probe was set to -88 Celsius for 108 seconds and a total of two cycles were performed. Pain reduction was reported for 3-4 months and repeat cryoablation was similarly efficacious with no evidence of incontinence. This technique, we believe minimizes risks and simplifies cryoablation to be performed on an outpatient basis by more pain physicians.

Dermatological Disorders

Comorbidity in patients with Lichen sclerosus: a retrospective cohort study

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Lichen sclerosus (LS) is a chronic lymphocyte mediated inflammatory mucocutaneous disease of unknown aetiology with a predilection for the anogenital region, and affecting both sexes. The disease is characterized by pain, intolerable itching and scarring. In late stages of LS, disfiguring scarring can drastically alter the structural anatomical architecture of the genitals. The association between genital LS and different malignant tumours is a concern that needs to be further investigated. An association between LS and several autoimmune diseases has been confirmed in recent studies. All registered citizens of Region Jönköping, Sweden were included in the present study. Patients diagnosed with LS (n = 5680) between 2001 and 2021 were identified using ICD-10 code L90.0 and selected as cases. All other individuals (n = 362 568) served as controls. Odds ratios (ORs) for the selected comorbidity were calculated and adjusted for age and sex. The cumulative incidence of LS for the entire population over a 20-year period was 1.54% (15.4 per 1000 people). The cumulative incidences over a 20-year period for females and males were 2.13% and 0.97%, respectively. This study confirmed the association between LS and vulvar cancer (OR = 17.4; 95% CI 12.1-25.3), penis cancer (OR = 9.1; 95% CI 4.3-18.9), prostate cancer (OR = 2.0; 95% CI 1.6-2.4) and breast cancer (OR = 1.6; 95% CI 1.4-1.8). LS was also associated

with Crohn's disease (OR = 2.0; 95% CI 1.6-2.6) and diabetes mellitus type 1 (OR = 1.9; 95% CI 1.6-2.1). The present study revealed novel important data regarding the association of LS with cancer and autoimmune diseases, emphasizing the importance of sufficient treatment and follow-up of patients with LS. However, future studies are needed to confirm these results and the potential role of LS in the development of cancer.

Nd:YAG/Er:YAG dual laser vs. topical steroid to treat vulvar lichen sclerosus: study protocol of a randomized controlled trial

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Purpose: Vulvar lichen sclerosus (LS) is a chronic debilitating inflammatory skin disease. Today, the gold standard is a life-long topical steroid treatment. Alternative options are highly desired. We present a study protocol of a prospective, randomized, active-controlled, investigator-initiated clinical trial comparing a novel non-invasive dual Nd:YAG/Er:YAG laser therapy with the gold standard for the management of LS. **Methods:** We recruited 66 patients, 44 in the laser arm and 22 in the steroid arm. Patients with a physician-administered clinical LS score ≥ 4 were included. Participants received either four laser treatments 1–2 months apart, or 6 months of topical steroid application. Follow-ups were planned at 6, 12, and 24 months. The primary outcome looks at the efficacy of the laser treatment at the 6-month follow-up. Secondary outcomes look at comparisons between baseline and follow-ups within the laser or the steroid arm, and comparisons between laser vs. steroid arm. Objective (LS score, histopathology, photo documentation) and subjective (Vulvovaginal Symptoms Questionnaire, symptom VAS score, patient satisfaction) measurements, tolerability, and adverse events are evaluated. **Conclusion:** The findings of this trial have the potential to offer a novel treatment option for LS. The standardized Nd:YAG/Er:YAG laser settings and the treatment regime are presented in this paper.

Application and Comparison of Dermoscopy and Reflectance Confocal Microscopy in the Target Treatment of Genital Lichen Sclerosus: A Single-Arm Prospective Study

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Introduction: The treatment of genital lichen sclerosus (GLS) remains challenging. Baricitinib has been introduced in the treatment of GLS, but there's no imaging evaluation for GLS patients treated with it. No comparison of dermoscopy and reflectance confocal microscopy (RCM) assessments in GLS has been conducted. We performed this study to evaluate the efficacy and safety of baricitinib for GLS and to compare the value of dermoscopy and RCM assessments in GLS. **Results:** Twenty-six GLS patients were included in this study. All patients achieved Investigator's Global Assessment score ≤ 1 (with ≥ 2 -grade improvement) at week 20. The scores of pruritus and pain decreased since week 2 (both $P < 0.05$). The DLQI and VQLI scores significantly decreased since week 4 (both $P < 0.0001$). White structureless areas improved at week 2 and white shiny streaks and follicular plugs improved at week 4 under dermoscopic examination. Vessels ($P < 0.001$) and brown structureless areas ($P = 0.003$) increased at week 8. In RCM, inflammatory cells count significantly decreased at week 2 (100.03 ± 33.24 , $P < 0.0001$), with substantial

regression at week 8 (16.98 ± 5.54 , $P < 0.0001$). Epidermal thickness increased at week 12 ($157.44 \pm 37.87 \mu\text{m}$ versus $134.13 \pm 36.60 \mu\text{m}$, $P = 0.0284$). Irregular papillae, spongiosis, and fiber structures improved at week 20, week 4, and week 6 (all $P < 0.01$). Transient hypercholesterolemia (11.54%), thrombocytosis (7.69%), and elevated alanine aminotransferase (7.69%) occurred during treatment.

Conclusion: Both dermoscopy and RCM can be useful and non-invasive adjuvant tools for the evaluation and therapeutic monitoring of GLS. We recommended white structureless areas under dermoscopy and inflammatory cells count under RCM as variables for dermatologic imaging evaluation for GLS. Baricitinib is effective and safe for GLS, while randomized controlled trials are warranted.

Multimodal OCT Control for Early Histological Signs of Vulvar Lichen Sclerosus Recurrence after Systemic PDT: Pilot Study

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Photodynamic therapy (PDT) is a modern treatment for severe or treatment-resistant vulvar lichen sclerosis (VLS). The chronic and recurrent nature of VLS requires control of recurrences at an early stage. In this paper, a non-invasive multimodal optical coherence tomography (OCT) method was used to control for early histological signs of VLS recurrence after systemic PDT using Photodithazine®. To interpret the OCT data, a histological examination was performed before PDT and 3 months after PDT. Two groups of patients were identified: with early histological signs of VLS recurrence (Group I, $n = 5$) and without histological signs of VLS recurrence (Group II, $n = 6$). We use structural OCT, OCT angiography, and OCT lymphangiography throughout 6 months after PDT to visually assess the skin components and to quantitatively assess the dermis by calculating the depth-resolved attenuation coefficient and the density of blood and lymphatic vessels. The OCT data assessment showed a statistically significant difference between the patient groups 3 months after PDT. In Group II, all the studied OCT parameters reached maximum values by the 3rd month after PDT, which indicated recovery of the skin structure. At the same time, in Group I, the values of OCT parameters did not approach the values those in Group II even after 6 months. The obtained results of multimodal OCT can be used for non-invasive control of early histological recurrence of VLS after systemic PDT and for adjusting treatment tactics in advance, without waiting for new clinical manifestations of the disease.

Collagen and elastin differences in vulvar tissue of women with lichen planus, lichen sclerosis and healthy women

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<https://pubmed.ncbi.nlm.nih.gov/37994812/>

Objectives: Lichen sclerosis and lichen planus are two debilitating dermatoses. Their etiology remains unknown. Skin changes resulting from these disorders are important to understand, so we can provide targeted treatment to patients. We examined the differences in collagen (COL1A1, COL1A2, COL3A1, COL5A1, COL5A2, COL5A3) and elastin (ELN) expression between vulvar tissue of women with lichen planus, lichen sclerosis and healthy women. **Results:** Thirty-nine vulvar samples were examined. The mean expression of COL1A1 was 11.13, COL1A2 was 6.72, COL3A1 was 8.43, COL5A1 was 11.91, COL5A2

was 10.62 and COL5A3 was 12.79. The mean expression of elastin (ELN) was 13.13. We found statistically significant difference in expression of collagen (COL1A2) and elastin (ELN) between healthy controls and patients with lichen planus ($p = 0.4$). We did not find differences for other genes ($p < 0.05$). **Conclusions:** Collagen and elastin are differentially expressed between patients with lichen planus and healthy controls.

The Novel Use of Bipolar Radiofrequency Microneedling in the Treatment of Lichen Sclerosus

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Introduction: Lichen sclerosus (LS) is a chronic, distressing, inflammatory process that has a huge impact on quality of life in women. Uncontrolled vulvar LS can lead to chronic symptoms of itching and pain and can lead to anatomic changes, scarring, and elevated risk of cancer. First-line therapy with corticosteroids is often not successful in controlling symptoms, especially over the long term. This is the first study to review the effects of bipolar radiofrequency (RF) with microneedling to treat the vaginal and vulvar symptoms of LS. **Results:** The data from the questionnaires showed a significant reduction or complete resolution in these symptoms, with 86% of the patients reporting either significant or complete resolution. In the case of itching, which is typically one of the most severe symptoms of LS, 91% of patients reported significant or complete resolution. 87% of patients reported symptom resolution lasting at least six months, with 39% of the patients having results lasting 12 months or more before recurrence. Recurrences can be retreated on an as-needed basis or with annual maintenance therapy consisting typically of just one treatment.

Conclusion: Radiofrequency with microneedling treatments for persistent LS showed significant improvement in LS symptoms. As LS is a chronic recurring condition, the treatment protocol resulted in high patient satisfaction for these women who had not experienced these results in terms of amount of symptom resolution or duration of symptom resolution with prior treatments using topical steroid cream or other modalities.

Insights from a joint pediatric dermatology-gynecology vulvar clinic: A retrospective study

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Background/objectives: Pediatric vulvar disease has not been widely explored in the medical literature. Few studies focus on vulvar disease in skin of color. The vulvar disease can be distressing for young patients given the sensitive location, and providers may lack experience in diagnosing and managing vulvar dermatoses. We sought to characterize the conditions seen, diagnostic challenges encountered, and the racial and ethnic factors associated with vulvar diseases in our multidisciplinary pediatric dermatology-gynecology vulvar clinic at Children's National. **Results:** Lichen sclerosus (LS) (36%, $n = 80$), inflammatory vulvitis (11%, $n = 23$), and vitiligo (9%, $n = 19$) were the three most frequent conditions observed. These conditions were often misdiagnosed as one another. There was a mean delay in diagnosis after symptom onset in LS patients of 16.43 months. **Conclusions:** LS, inflammatory vulvitis, and vitiligo are common vulvar diseases among pediatric patients. Accurate diagnosis is important because LS must be treated aggressively to prevent sequelae. Further studies are warranted to help differentiate LS and vitiligo with consideration of skin tone.