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Genital lichen planus and lichen sclerosus - seemingly similar and yet different

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ABSTRACT

Genital lichen planus and lichen sclerosus are chronic autoimmune inflammatory dermatological diseases that affect both men and women. These two conditions are serious and challenging, significantly reducing the quality of daily life. Symptoms of lichen planus in both men and women include burning and painful urination, dyspareunia, as well as discharge in women. The main treatment involves topical corticosteroids, but in more severe cases, doctors may also use medications such as azathioprine, cyclophosphamide, and mycophenolate mofetil. Additionally, patients may use vaginal dilators covered with corticosteroid ointment or estrogen cream to reduce symptoms and alleviate dyspareunia. In lichen sclerosus, the symptoms are very similar. However, it's important to note that this condition increases the risk of developing cancer. Characteristic porcelain-white papules and plaques precede the onset of erythema and edema, and prolonged disease activity leads to atrophic changes and erosions. Doctors primarily treat this condition with topical corticosteroids, but they may also use cyclosporine, phototherapy, and photodynamic therapy. In men, circumcision is another form of therapy that is not uncommon. Lichen planus and genital lichen sclerosus are similar but significantly different conditions. The symptoms of both conditions are a significant problem among patients, affecting their daily lives and mental health.

Keywords: Lichen planus, lichen sclerosus, mental health, symptoms, treatment, genital disease

1. INTRODUCTION

Lichen sclerosus and lichen planus are inflammatory diseases whose pathophysiology is still unclear. The former shows a predilection for the skin of the anogenital region, while the latter affects the skin, mucous membranes, and

nails, and often also involves the vulva (Van-de-Nieuwenhof et al., 2010; Fahy et al., 2017). According to studies, lichen planus affects between 0.14 and 1.27% of the general population. At least two-thirds of cases occur between the ages of 30 and 60. The disease rarely occurs in children but can affect individuals of any age (Ioannides et al., 2020). The incidence of lichen sclerosis among adults varies between 0.1% and 0.6%, with women having the disease far more often than men (Tong et al., 2015; Fistarol and Itin, 2013).

The incidence of lichen sclerosis in children ranges from 0.04% to 0.06% (Kyriakis et al., 2007; Kizer et al., 2003). What both these disease entities have in common is the very intractable symptoms that affect patients' daily lives, their increased tendency to experience depressive episodes, and increased anxiety. Both lichen planus genitalis and lichen sclerosus are associated with a significantly reduced quality of life. Therefore, healthcare providers should actively consider the psychological aspect when treating patients with these diseases (Ranum and Pearson, 2022). While considering lichen sclerosis, one should not forget about the severe complication of squamous cell carcinoma of the penis or vulva, which can also develop in people with lichen planus but statistically less frequently (Sim et al., 2022; Kwok et al., 2022).

2. SYMPTOMS AND DIAGNOSIS

Both conditions often lead to misdiagnosis because of their non-specific symptoms. In the case of lichen planus of the female genitalia, the most common symptoms reported by patients are discharge, pain, and burning, which then lead to dyspareunia (pain during sexual intercourse) and dysuria (pain during micturition). The skin lesions may manifest as small, white bumps in their mildest form, while severe erosive disease may even result in scarring. Patients with advanced disease may not infrequently experience painful perianal examination. Partial or even complete vaginal overgrowth is also possible (Wu et al., 2020). Symptoms accompanying men with lichen planus are mainly itching, pain, and dyspareunia. Lichen planus of the male genitalia has a varied morphology.

In most patients, the penile mucosa is involved. The most commonly observed symptoms include erythema involving the penile glans mucosa, the inner side of the foreskin, and the urethral outlet. On the other hand, abscesses typically occur on the skin of the penile shaft, the outer layer of the foreskin, and the scrotum. Erosion, atrophic, and post-inflammatory lesions are also present during the disease. Lichen planus can also lead to phimosis (Table 1) (Amsellem et al., 2022). In patients with lichen sclerosis, symptoms are similar in both sexes. These include pruritus that worsens at night, burning, dysuria, dyspareunia, and difficulty passing stools (Fistarol and Itin, 2013). In addition, lichen sclerosis typically involves the intervaginal furrows, labia majora and labia minora, clitoris, clitoral foreskin, perineum, and perianal area.

Table 1 Characteristics of treatment methods used for genital lichen planus (Amsellem et al., 2022).

Ultra-high potency topical steroids	Frequent satisfactory control of the symptoms
Azathioprine, Cyclophosphamide, Mycophenolate mofetil	Used in severe and treatment-resistant cases
Vaginal dilators coated with corticosteroid ointment or estrogen cream	Reduction of symptoms and dyspareunia
Surgery	Used after achieving satisfactory disease control

In contrast to lichen planus, the cervix and vagina are free of lesions. The onset is often in the form of a sharply demarcated, slightly raised, non-specific erythema. In addition, visible swelling may occur, and the condition may cause atrophy of the labia minora. It is also worth remembering that in patients with genital lichen planus, there is a significantly increased risk of developing vulvar squamous cell carcinoma (Fistarol and Itin, 2013). Lichen sclerosis of the male genitalia is a disease primarily of uncircumcised men. Lesions mainly appear around the foreskin, glans penis, and external urethral orifice. In a few cases, the anal area is involved. Early symptoms often include a greyish or bluish-white discoloration of the inner surface of the foreskin or glans. Emerging post-inflammatory scarring may lead to sclerosis, leading to phimosis (Bunker and Shim, 2015).

With lichen sclerosis of the genital area, it is also essential to bear in mind the increased risk of malignancy. In most cases, patients are affected by squamous cell carcinoma (Jabłowska et al., 2021). It is helpful to note several differences to distinguish between the two disease entities. The following symptoms would indicate a diagnosis of lichen planus: Vulvar and vaginal involvement, oral lesions, pain as the main symptom, and reddening of the skin. On the other hand, a diagnosis of lichen sclerosis would include

vulvovaginal involvement, the absence of oral lesions, pruritus as the main symptom, and skin lichenification (Table 2) (McPherson and Cooper, 2010).

Table 2 Lichen Planus vs. Lichen Sclerosis: Differentiation by Location and Symptoms (McPherson and Cooper, 2010).

Lichen planus	Lichen sclerosis
Vulvovaginal involvement	Involvement of the vulva
Presence of lesions in the oral cavity	No lesions in the oral cavity
Pain is the primary symptom	Itching is the primary symptom
Reddening of the skin	Thinning and whitening of the skin

3. TREATMENT

In treating both lichen sclerosis and genital lichen planus, the first-line treatment is topical corticosteroids (Monreal, 2020). In treating genital lichen planus, potent topical corticosteroids often allow reasonable control of symptoms. For severe, refractory cases, azathioprine, cyclophosphamide, tacrolimus, and mycophenolate mofetil are used (Zendell, 2015; Usatine and Tinitigan, 2011). In women, doctors use vaginal dilators coated with corticosteroid ointment or estrogen cream to alleviate symptoms and reduce dyspareunia. In addition, surgeons may consider performing surgery when the disease is well-controlled (Chow et al., 2023). For lichen sclerosis, topical corticosteroids such as clobetasol propionate significantly improve quality of life. Burrows et al., (2011) showed that pain was significantly reduced in women with lichen sclerosis during therapy with this medication.

Topical calcineurin inhibitors such as pimecrolimus and tacrolimus, among others, are characterized by significant anti-inflammatory effects and are therefore used in the therapy of lichen sclerosis (Fistarol and Itin, 2013). However, one must consider the significant concerns regarding the use of these drugs, as they may increase the risk of malignant tumors (Bunker, 2011). Among other things, Fischer and Bradford, (2007) cited the story of three patients with lichen sclerosis who developed genital squamous cell carcinoma. Two patients received tacrolimus treatment, and one patient received pimecrolimus. Photodynamic therapy is also an alternative treatment method when conventional treatment fails, sometimes allowing satisfactory control of symptoms, including resolution of pruritus and dyspareunia (Sotiriou et al., 2008; Zawislak et al., 2009).

Among women, doctors should perform surgery only on patients with associated vulvar intraepithelial neoplasia or malignant neoplasia or to remove scars that hinder normal function (Funaro, 2004). However, the situation differs for men with lichen sclerosis, who more often receive surgical treatment. Circumcision becomes necessary when pharmacotherapy fails or when scarring results in structural changes. In this situation, circumcision proves to be a highly effective treatment (Kulkarni et al., 2009; Khachemoune et al., 2006). Although topical and systemic retinoids have demonstrated their efficacy, they have not found wide acceptance in the treatment of this disease entity, most likely due to their well-known side effects and severe teratogenic effects, as well as the need for long-term treatment of this chronic, recurrent disease entity (Bousema et al., 1994; Ioannides et al., 2010).

Doctors once considered testosterone therapy for patients with lichen sclerosis but abandoned it due to its ineffectiveness and side effects, including virilization in women (Cattaneo et al., 1996; Mangold et al., 1998). One should remember that good hygiene also serves as a form of therapy for both of these disease entities. In some cases, using appropriate emollients also allows a satisfactory control of symptoms in both lichen planus genitalis and lichen sclerosis (Fistarol and Itin, 2013) (Table 3).

Table 3 Pharmacological and supportive treatment of genital lichen sclerosis (Fistarol and Itin, 2013).

Pharmacological treatment	Supportive treatment
Ultra-high potency topical steroids (clobetasol propionate)	Hygiene
Topical hormonal treatment	Moisturization with emollients
Topical calcineurin inhibitors	Hyaluronic acid gels
Topical and systemic retinoids	Treatment of concomitant infections
Photodynamic therapy	Circumcision

Impact on life

Both diseases significantly reduce patients' quality of life, affecting them both mentally and physically (Ranum and Pearson, 2022; Yıldız et al., 2022). Patients with lichen sclerosis and lichen planus are less likely to engage in their sex lives, through the chronic and sometimes even irreversible nature of the genital lesions (Yıldız et al., 2022). Difficulties with intercourse are due, among other things, to dyspareunia. The fear of pain leads to decreased arousal, which in turn causes pelvic muscle spasms. Patients also have difficulty achieving orgasm (Van-de-Nieuwenhof et al., 2010). The lesions in the genital area caused by both diseases trigger anxiety related to exposure to the intimate area, which significantly impacts patients' quality of sexual life (Yıldız et al., 2022).

Patients are often ashamed of their condition, which leads to delayed diagnosis. This makes even everyday activities such as walking and sitting uncomfortable. In addition, the constant feeling of shame and fear of transmitting the disease to one's sexual partner significantly affects the psychological state of patients (Cheng et al., 2017). Lichen sclerosis and lichen planus of the genital region significantly impact patients' mental health. Patients experience increased feelings of stress, depression, and anxiety (Alnazly et al., 2023; Sawant et al., 2015; Kanwar and De, 2010). Therefore, it is essential to remember the importance of mental health support in these patients to improve their well-being, which will translate into improved overall clinical outcomes (Alnazly et al., 2023).

4. CONCLUSION

The etiology of lichen sclerosis and genital lichen planus is still unclear. Both disease entities can lead to severe pain and scarring. Although they are similar, symptoms and treatment differ. It is important to bear in mind that they not only affect the appearance of localized symptoms but very often also impact the patient's quality of life, which must not be forgotten during treatment.

Author's Contribution

Anna Seroka: Conceptualization, writing - rough preparation, writing - review and editing

Maria Rybicka: Conceptualization, methodology

Aleksander Górny: Resources, writing - rough preparation

Jan Kościan: Visualization, investigation

Julita Młynarska: Methodology, data curation

Anna Wójcik: Resources, investigation

Maria Miłkowska: Formal analysis, data curation

Jakub Langa: Visualization, formal analysis

Michał Obrębski: Resources, supervision

Karolina Szczerkowska: Investigation, methodology

Justyna Chwiejczak: Conceptualization.

Informed consent

Not applicable.

Ethical approval

Not applicable.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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