



# Vulvovaginal Candidiasis: What Are the Promising New Insights in Treatment?

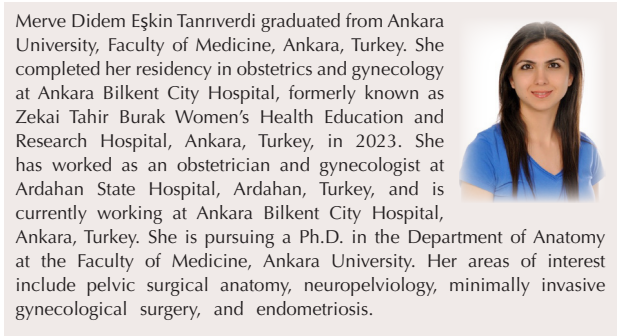
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Vulvovaginitis, an inflammation of the vulva and vagina, commonly occurs in women of reproductive age and has various causes. Candidal vulvovaginitis is caused by inflammation of the vulvar and vaginal epithelium due to infection by *Candida* species, with *Candida albicans*, a polymorphic opportunistic fungus, being the most common. Candidal vulvovaginitis accounts for approximately one-third of all vulvovaginitis cases. Common clinical features include thick-white-adherent discharge, swelling, vulvovaginal erythema, and excoriations. The condition is primarily diagnosed through clinical examination and tests such as vaginal wet prep, pH testing, and cultures to rule out other causes of vulvovaginal infection, including bacterial vaginosis, gonorrhea, and chlamydia (1).

Acute vulvovaginal candidiasis is managed with antifungal medications. Antifungals can be administered in various ways, such as a single oral dose of fluconazole or intravaginal application of terconazole. Considering the susceptibility of antifungals used in the treatment of vulvovaginal candidiasis, recent findings indicate that *Candida* species exhibit the highest susceptibility to Amphotericin B, followed by ketoconazole, miconazole, voriconazole, and fluconazole (2).

Extended treatment regimens are generally preferred in treating patients with complicated vulvovaginal candidiasis, including those with recurrent infections or immunosuppressed ones. This may include intravaginal azole therapy for at least seven days or oral fluconazole administered once every three days for three doses. Patients with recurrent vulvovaginal candidiasis might receive benefits from suppressive therapy, like weekly oral fluconazole therapy, for six months. However, oral antifungals are not suggested to be prescribed during pregnancy. Some authors still recommend a one-week course of intravaginal treatment for pregnant women (3).

An analysis was launched to explore alternative methods using herbs such as berberine, dill, and turmeric in response to the rising number of resistant strains and the increased recurrence of vulvovaginal candidiasis with conventional



treatments like fluconazole. While phytotherapy has not yet been Food and Drug Administration (FDA) approved, it shows promise as a potential treatment for resistant strains (4). The developments to be introduced in this field, especially concerning the treatment of resistant vulvovaginal candidiasis patients and pregnant women, appear promising.

In recent years, it has been revealed that blue light-emitting-diode (LED) therapy effectively lowers *Candida* counts in women with recurrent vulvovaginal candidiasis without negatively impacting vaginal pH, underscoring its safety and efficacy as a treatment option. The safety and non-invasive nature of LED therapy makes it a promising option for applications involving sensitive tissues. Thus, blue-LED therapy has emerged as an alternative treatment option, especially in recurrent vulvovaginal candidiasis infections, with its proven antimicrobial properties (5).

Aside from all this, one of the controversial topics in the treatment of vulvovaginal candidiasis is the use of probiotics. The consensus is that using probiotics to treat vulvovaginal candidiasis reduces *Candida* colonization and increases the effectiveness of locally used antifungals, thereby reducing symptoms and recurrence. However, it is notable that the effectiveness of probiotic-based treatments in managing vulvovaginal candidiasis is controversial, with some authorities stating that this treatment method offers no benefits (6).

The development of fungal vaccines and/or adjuvants



offers a promising future, enhancing the prospects for improved diagnosis, prevention, and treatment of fungal infections. In this area, significant focus has been placed on the development of several major fungal vaccines aimed at controlling *Candida* spp., *Cryptococcus* spp., *Aspergillus* spp., *Coccidioides* spp., *Histoplasma* spp., *Paracoccidioides* spp., *Pneumocystis* spp., and *Blastomyces* spp., as well as the adjuvants used to enhance their efficacy. Additionally, there is anticipation of a deeper understanding of the immunomodulatory properties of univalent and multivalent vaccines targeting various opportunistic fungi. This knowledge will provide valuable insights for the development of new fungal vaccines and/or adjuvants (7).

Despite the presence of a significant amount of data related to the treatment of vulvovaginal candidiasis, the lack of sufficient data on treatment modalities that can be safely used throughout pregnancy with medical/non-medical treatment methods can lead to challenges in managing these patients. The effectiveness of existing treatment methods has been established; however, it would be beneficial to develop new treatment methods for patients with resistant vulvovaginal candidiasis infections and pregnant women.

#### Conflict of Interests

None.

#### Ethical Issues

Not applicable.

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