

CONCURRENT CLINICALLY DIAGNOSED GENITAL HERPES, SECONDARY SYPHILIS, AND VULVOVAGINAL CANDIDIASIS IN EARLY PREGNANCY: A CASE REPORT

Verika Christabela Tansuri^{1*}, I Made Birawan², Ketut Kwartantaya Winaya³, Ni Made Adhiswari Mardhana⁴, Putu Natasha Arivia Candra Nugraha⁵

^{1,4,5} Intern, Department of Dermatology and Venereology, Bali Mandara Hospital, Denpasar, Bali, Indonesia

² Dermatologist and Venereologist, Department of Dermatology and Venereology, Bali Mandara Hospital, Denpasar, Bali, Indonesia

³ Dermatologist and Venereologist, Department of Dermatology and Venereology, Medical Faculty of Udayana University, Denpasar, Bali, Indonesia

Email corresponding: verikachamomile@gmail.com, madebirawan@gmail.com, dr.kwartantayaw@unud.ac.id, adhismardhanaa@gmail.com, natashaariviactn@gmail.com

ABSTRACT

Sexually transmitted infections (STIs) are highly prevalent worldwide among individuals of reproductive age and pose substantial risks in pregnancy, including adverse maternal and neonatal outcomes. Genital herpes, syphilis, and vulvovaginal candidiasis may occur concurrently during pregnancy and present with overlapping genital manifestations, but reports describing their concurrent occurrence in early pregnancy remain limited. A 22-year-old woman at 12 weeks' gestation presented with painful genital ulcers preceded by vesicles, pruritus, burning sensation, dysuria, and fever for the past five days. The patient also reported odorless, milky vaginal discharge. The patient reported her first unprotected sexual intercourse 5 months prior with her husband. The patient denied multiple sexual partners, whereas her husband reported multiple sexual partners. Her husband had a history of minimally painful genital lesions, with laboratory findings reactive for IgM anti-HSV I/II, VDRL and TPHA. Venereological examination of the vulvar showed multiple erosive-ulcerative lesions. Genital herpes was clinically suspected; however, direct HSV testing, including PCR/NAAT, viral culture, lesion swab testing, or type-specific HSV-1/HSV-2 serology, was not performed, and therefore HSV infection could not be laboratory-confirmed or definitively classified as primary. At follow-up, the genital lesions had improved, but erythematous scaly macules and patches developed on the palms and soles. TPHA was reactive and VDRL was reactive with a titer of 1:32, while rapid HIV testing was non-reactive, supporting a diagnosis of secondary syphilis. Vaginal microscopy showed yeast cells and hyphae/pseudohyphae without clue cells, supporting vulvovaginal candidiasis. Long-term maternal and neonatal outcomes could not be reported because the pregnancy and follow-up were still ongoing at the time of manuscript preparation. The patient received benzathine penicillin G 2.4 million IU intramuscularly as a single dose and nystatin 100,000 IU intravaginally for five days. The candidiasis-related symptoms improved after treatment, and follow-up VDRL testing on 13 May 2026 showed a decline in titer to 1:8. This case highlights the importance of comprehensive evaluation in pregnant women presenting with genital lesions and vaginal symptoms, as multiple genital infections may occur concurrently. Genital herpes may be diagnosed clinically based on characteristic lesions, while laboratory testing supports the diagnosis of concomitant infections. Treatment should be individualized according to pregnancy status and current clinical guidelines.

KEYWORDS: genital herpes, syphilis, vulvovaginal candidiasis, pregnancy, co-infection

INTRODUCTION

Sexually transmitted infections (STIs) are infections caused by microorganisms transmitted through various forms of sexual contact (1). STIs are a major global health issue among individuals of reproductive age. According to the World Health Organization (WHO) in 2020, more than 374 million new cases of chlamydia, gonorrhea, trichomoniasis, and syphilis among individuals aged 15 to 49 years. Viral STIs are also highly prevalent, with over 520 million people infected with herpes simplex virus (HSV) and approximately 300 million women with human papillomavirus. STIs can affect sexual and reproductive health by increasing risk of human immunodeficiency virus (HIV), infertility, malignancies, and pregnancy complications (2). According to the Centers for Disease Control and Prevention (CDC), global maternal syphilis rates increased across all age groups from 2016 to 2022, with the largest rise among mothers below 20 years old, from 107.3 to 418.6 per 100,000 births (3). Meanwhile, HSV infection affects approximately 2 to 3 percent of pregnant women. The exact incidence of concurrent infection in early pregnancy has not been well established in the literature, as most available epidemiologic data describe single infections. STIs in pregnancy pose significant risks to maternal and neonatal health (4). This case report aims to highlight the overlapping genital manifestations, diagnostic approach, treatment considerations, and follow-up of concurrent genital infections during early pregnancy.

Case Report

A 22-year-old Indonesian woman presented to the Dermatology and Venereology Clinic at Bali Mandara Regional Hospital on 2 March 2026 at 12 weeks of pregnancy. She was G1P0A0. She complained of genital sores for the

past five days. Genital sores were preceded by fever two days earlier, followed by multiple pruritic, painful vesicles that enlarged and increased in number, causing a burning sensation and dysuria. She also reported odorless, milky-white vaginal discharge. The patient reported her first unprotected sexual intercourse five months prior with her husband. She denied having other sexual partners, whereas her husband reported to have multiple sexual partners. The patient's husband had a history of herpes and underwent laboratory testing on 1 March 2026, which showed reactive anti-HSV-1/2 IgM (3.84; reference value < 0.80). However, he did not have active herpetic lesions or symptoms at the time of sexual intercourse with the patient. Her husband was unaware of any previous history of herpes infection or genital lesions before. The patient had no previous history of herpes, and this clinical pattern supported a clinical suspicion of a first recognized episode of genital herpes.

Venereological examination of the vulva revealed multiple erosive-ulcerative lesions with well-defined borders, a geographic shape, and sizes ranging from 0.3×0.4 cm to 0.5×0.6 cm. The ulcers had uneven margins and an erythematous base partially covered by serous exudate (Figure 1). The lesions were tender on palpation, with no bleeding or inguinal lymphadenopathy. A complete blood count performed on 28 February 2026 showed a hemoglobin level of 12.0 g/dL (laboratory reference range, 12.3 to 15.3 g/dL) and a lymphocyte differential of 22.9 percent (laboratory reference range, 25.0 to 40.0 percent).



Figure 1 Multiple erosive-ulcerative vulvar lesions observed at the initial clinical presentation on 2 March 2026, with well-defined geographic borders, an erythematous base, and partial serous exudate.

Because there was no previous history of herpes episodes and the clinical pattern supported a clinical suspicion of a first recognized episode of genital herpes. However, no direct HSV testing was performed in the patient, including PCR/NAAT, viral culture, or type-specific HSV serology. Therefore, the diagnosis in this patient was stated as clinically suspected genital herpes.

Based on the clinical suspicion of genital herpes, the patient received oral acyclovir 400 mg three times daily for seven days. Acyclovir cream was also applied five times daily, and 0.9 percent sodium chloride compresses were applied three times daily to the erosive lesions. Topical acyclovir was administered as part of the initial treatment in this case and does not represent a general recommendation for genital herpes. Patient's husband also received treatment for herpes and was clinically evaluated one week after treatment. Counselling was provided regarding sexually transmitted infection transmission, consistent condom use, partner evaluation and treatment, and prevention of reinfection.

Follow Up

At the follow-up visit on 10 March 2026, approximately eight days after the initial visit, the genital ulcers had improved and become smaller, although the odorless, milky-white vaginal discharge persisted. However, over the preceding three days, the patient developed non-pruritic, non-tender erythematous scaly macules on the palms and soles bilaterally, without sensory disturbance or systemic symptoms.

Dermatologic examination showed multiple well-defined erythematous-hyperpigmented macules and patches on the palms and soles, measuring 0.1×0.3 cm to 1×1.5 cm, some with white scales. (Figure 2). Venereological examination showed vulvar ulcers evolving into superficial erosions measuring 0.1×0.3 cm to 0.2×0.3 cm, with partial re-epithelialization and minimal serous exudate. Thick, white, adherent vaginal discharge was present without inguinal lymphadenopathy. (Figure 3).



Figure 2. Palmoplantar lesions observed on 10 March 2026. (a) Regio Palmar: Multiple well-defined erythematous-hyperpigmented macules and patches with geographic borders. (b) Regio Plantar: Multiple erythematous-hyperpigmented macules and patches with geographic borders, several of which are partially covered with fine white scale.



Figure 3. Improvement of vulvar erosive-ulcerative lesions at follow-up on 10 March 2026 after acyclovir therapy.

The patient and her partner underwent serological testing for syphilis and HIV on 10 March 2026. The patient's results were reactive for TPHA and VDRL, with a VDRL titer of 1:32, whereas her husband had reactive TPHA and VDRL results with a VDRL titer of 1:4. HIV testing was non-reactive in both. These serological findings supported the diagnosis of secondary syphilis.

The patient received benzathine penicillin G 2.4 million IU intramuscularly as a single dose for secondary syphilis. Her partner was also treated for syphilis. Before administration of benzathine penicillin G, the patient was counseled regarding the possibility of a Jarisch–Herxheimer reaction (JHR), as this reaction may occur following syphilis treatment and is particularly relevant during pregnancy. The patient was informed about fever, uterine contractions or abdominal pain, decreased fetal movement, and other warning signs. A skin test was also performed before administration, with no evidence of an immediate hypersensitivity reaction. During remote follow-up, the patient reported no symptoms suggestive of a Jarisch–Herxheimer reaction.

The patient also underwent a vaginal smear examination due to the persistent discharge. Gram staining showed no clue cells, while KOH examination demonstrated yeast cells and hyphae/pseudohyphae, supporting the diagnosis of vulvovaginal candidiasis. No fungal culture or *Candida* species identification was performed. The laboratory report also recorded a Nugent score of 6, indicating altered vaginal flora but not meeting the diagnostic criteria for bacterial vaginosis.

For vulvovaginal candidiasis, she received nystatin 100,000 IU intravaginally in ovule form for five days. After completing the five-day treatment, her candidiasis-related symptoms were reported to have improved.

On 13 May 2026, syphilis serology was repeated for follow-up after benzathine penicillin G administration. The VDRL remained reactive, but the titer decreased from 1:32 before treatment to 1:8 at follow-up, representing a fourfold decline in titer.

DISCUSSION

This case highlights the concurrent discovery of suspected genital herpes, secondary syphilis, and vulvovaginal candidiasis in early pregnancy, with evolving and overlapping clinical manifestations. Genital herpes is a STI caused by HSV, characterized by lifelong latency and recurrent clinical episodes (5, 6). Clinical manifestations are divided into primary, non-primary, and recurrent infections. Primary genital herpes may present three to seven days after the incubation period, lesions present in different stages of evolution, including clustered vesicles, pustules, and erythematous ulcers that may require two to three weeks to resolve. This lesion can be especially painful, leading to swelling of the vulva in women, burning pain, itchy, dysuria, and tender inguinal lymphadenopathy. Systemic manifestations frequently occur and encompass fever, headache, malaise, and myalgias. HSV cervicitis characterised by purulent or bloody vaginal discharge. Symptoms for non-primary and recurrent infections are lighter than primary infection. In pregnant patients, the morphology of the lesions is essentially the same as in non-pregnant adults (6-8).

The clinical findings in this case were consistent with genital herpes. Genital herpes can be diagnosed clinically based on characteristic history and physical findings; however, in the absence of virological testing, it was not possible to definitively classify the episode as a primary infection. Laboratory methods for HSV diagnosis include viral culture, Tzanck smear, real-time polymerase chain reaction (RT-PCR), and serological examination (5, 6). In this case, the patient had experienced genital sores for five days, and the history of genital lesions in her sexual partner, together with reactive anti-HSV I/II IgM serology, further supported the clinical suspicion of genital herpes.

Further evaluation was warranted as the genital lesions were clinically suggestive of a syphilitic chancre. Syphilis is a STI caused by *Treponema pallidum*, classified into primary, secondary, latent, and tertiary stages. Its diverse clinical manifestations can mimic various other conditions, earning syphilis the designation of the “great imitator.” Primary syphilis known as chancre, appears after an incubation period of ten to ninety days. Secondary syphilis generally appear three to twelve weeks after the development of the chancre and may occur up to six months after exposure. Manifestations of secondary syphilis include *roseola syphilitic*, condyloma lata, *moth-eaten* alopecia, *corona veneris*, *clavi syphilitici*, and *plaques fauchée en prairie*. Latent syphilis is characterized by the serologic evidence of infection by *Treponema pallidum* without clinical signs or symptoms. Tertiary syphilis is rare and represents late-stage disease, manifesting as cardiovascular, neurosyphilis, or gummatous involvement (6, 9).

Serologic testing includes nontreponemal tests (VDRL, RPR), which detect IgG/IgM antibodies to lipoidal antigens and become reactive four to five weeks after infection, peaking within the first year before declining; titers may be low or nonreactive in late disease. Treponemal tests (e.g., FTA-ABS, TPPA, TPHA) detect specific antibodies to *T. pallidum* and are used to confirm diagnosis. Once positive, treponemal tests typically remain reactive for life, even after adequate treatment. In this case, palmoplantar macular–patchy eruptions with reactive TPHA and VDRL (titer 1:32), alongside a non-reactive HIV test, are consistent with active secondary syphilis without HIV coinfection (6, 10). In this patient, the development of roseola syphilitica, characterized by erythematous to hyperpigmented macules and patches with palmoplantar involvement, provided an important diagnostic clue for secondary syphilis following the initial presentation with genital ulcers. The diagnosis of syphilis is based on clinical findings supported by treponemal and non-treponemal serological testing. During pregnancy, timely diagnosis and treatment are particularly important because maternal syphilis carries a risk of vertical transmission and adverse pregnancy outcomes. Penicillin remains the treatment of choice during pregnancy (9).

Vulvovaginal candidiasis (VVC) is a common mucocutaneous infection of the lower genital tract, typically presenting with vulvar pruritus, erythema, burning, dysuria, dyspareunia, and thick, curd-like vaginal discharge. *Candida albicans* is the most common causative species, particularly among women of reproductive age. Pregnancy is an important predisposing factor, along with diabetes, antibiotic exposure, hormonal changes, and altered immune status (11). Diagnosis is based on compatible clinical findings and microscopic examination, with 10% KOH wet mount providing a rapid and inexpensive bedside test. The presence of yeast cells, budding yeasts, or pseudohyphae supports the diagnosis, while fungal culture may be considered when microscopy is negative despite persistent symptoms (6, 12). In this case, KOH examination demonstrated yeast cells and hyphae/pseudohyphae, supporting the diagnosis of vulvovaginal candidiasis. Fungal culture and species-level identification of *Candida* were not performed, as species identification would not have altered the management, which remains antifungal therapy.

Accordingly, the coexistence of clinically suspected genital herpes, secondary syphilis, and vulvovaginal candidiasis in this case should be understood as multiple conditions occurring concurrently, rather than as evidence that one infection caused or facilitated another. The exact incidence of triple coinfection involving genital herpes, secondary syphilis, and vulvovaginal candidiasis in early pregnancy has not been well established in the literature, as most available epidemiologic data describe single infections or dual coinfections rather than this specific three-pathogen combination. Nevertheless, this constellation remains clinically plausible because genital herpes and syphilis are the major causes of genital ulcer disease, and more than one etiologic agent may coexist in the same patient or even within the same genital lesion (6).

During pregnancy, the management of concurrent genital herpes, syphilis, and vulvovaginal candidiasis necessitates a careful equality between maternal and fetal safety. Pregnant women with primary HSV infection should receive antiviral treatment such as oral antiviral include acyclovir 200 mg five-times-daily or acyclovir 400 mg three-times-daily, for seven to ten days until the lesions have completely resolved. Topical acyclovir,

applied five-times-daily, may be used as an adjunct for localized symptoms but should not replace systemic antiviral therapy (13, 14). Syphilis management is stage-based, with benzathine penicillin G as the first-line and only recommended therapy to treat maternal infection, reduce vertical transmission, and improve neonatal outcomes, with the greatest benefit when initiated early ideally before twenty-eight-weeks of gestation. For primary, secondary, and early latent syphilis, the recommended regimen is a single intramuscular dose of benzathine-penicillin G 2.4 million units (6, 15). Most of vulvovaginal candidiasis cases are caused by *Candida albicans*, which is generally susceptible to azole antifungals. Therefore, azole agents are the preferred treatment; however, in pregnancy, topical-or-intravaginal regimens are recommended instead of oral-therapy. Treatment options include clotrimazole 100 mg intravaginally once daily for seven days or nystatin 100,000 units intravaginally twice daily for fifteen days (16, 17). Although most guidelines recommend intravaginal nystatin 100,000 units intravaginally twice daily for fifteen days for pregnancy, in routine practice, shorter courses of three to five days are sometimes used empirically based on symptom resolution and clinician experience rather than robust trial data (6). In the present case, vulvovaginal candidiasis was managed with intravaginal nystatin 100,000 IU once daily for five consecutive days, with good symptomatic improvement and no treatment-related adverse effects.

In addition, before administering benzathine penicillin G for syphilis in pregnancy, it is important to provide education regarding the potential for a JHR. This transient inflammatory response can occur within twenty-four hours of penicillin administration and is characterized by fever, headache, flare of mucocutaneous lesions, tender lymphadenopathy, pharyngitis, malaise, myalgia, and leukocytosis. In pregnant patients, it may lead to transient uterine contractions, fetal distress, or, rarely, preterm labor. JHR is not a penicillin allergy, and most episodes resolve within twenty-four hours with supportive care, including antipyretics and hydration. Fetal monitoring is advised if symptoms suggest maternal or fetal risk, particularly in the later stages of pregnancy (6, 7). During remote follow-up, this patient reported no symptoms suggestive of a JHR. The patient continued routine antenatal care with an obstetrician at a private clinic. Based on the patient's reported history, no concerning obstetric symptoms were noted during follow-up; however, objective obstetric data, including fetal heart rate and ultrasound findings, were not available.

Untreated genital herpes and syphilis during pregnancy carry substantial risk for adverse pregnancy outcomes and congenital infection. Acquisition of genital herpes and syphilis in the pregnancy can increase the likelihood of congenital malformations, miscarriage, preterm birth, and intrauterine growth restriction (7). Vulvovaginal candidiasis during pregnancy is associated with potential maternal discomfort and local inflammation (18). In this case, early diagnosis at 12-weeks and prompt initiation of acyclovir, benzathine penicillin G, and intravaginal nystatin may reduce the risk of adverse pregnancy and neonatal outcomes compared with untreated or late-treated disease. However, because residual risks of vertical transmission and obstetric complications cannot be completely eliminated, ongoing antenatal surveillance remains necessary. As the pregnancy was still ongoing at the time of manuscript preparation, this case report could not capture the complete clinical course through delivery or provide neonatal outcome data, representing an important limitation of the report.

Following completion of guideline-based therapy, patients should receive structured counselling on safer sexual practices. This includes consistent and correct condom use with all sexual contacts, as well as temporary abstinence during episodes of active genital herpes or symptomatic vulvovaginal candidiasis. These measures aim to reduce genital viral shedding and prevent pathogen transmission. Partner notification is essential, whereas all recent sexual partners should be encouraged to undergo evaluation and, when indicated, should receive appropriate treatment. The purpose is to interrupt ongoing transmission and prevent reinfection in patients who have been treated (7). In this case, the patient's husband underwent evaluation and received treatment for both syphilis and genital herpes.

For pregnant women with genital herpes, clinical assessment near term is recommended to identify active genital lesions or prodromal symptoms. Caesarean delivery is indicated when active genital lesions or prodromal symptoms are present at the onset of labor, as it can reduce the risk of intrapartum HSV transmission. However, caesarean delivery does not eliminate this risk, as viral shedding may occur in the absence of visible lesions (6, 8). The follow-up schedule and serologic monitoring of syphilis in pregnant women are generally similar to those in non-pregnant patients. Treatment response is assessed using quantitative non-treponemal serologic tests. Therapy is considered effective if the non-treponemal titer shows at least a four-fold decline within six to twelve months of treatment. Treatment failure is suspected when clinical signs or symptoms of syphilis persist, when there is a 4-fold increase in VDRL titer compared with the previous value, or when a four-fold decline in VDRL titer is not achieved within six to twelve months for primary or secondary syphilis (7). In this case, the VDRL titer decreased from 1:32 before treatment to 1:8 at follow-up, representing a four-fold decline and an early serologic response to treatment.

The clinical significance of this case lies in the importance of maintaining a broad differential diagnosis when genital manifestations cannot be adequately explained by a single condition. Although genital ulcers may initially suggest genital herpes, the presence of additional risk factors and evolving clinical findings should prompt consideration of concomitant sexually transmitted infections. Similarly, persistent vaginal discharge warrants independent evaluation rather than being attributed to the initial diagnosis. A systematic approach integrating clinical history, physical examination, serological testing, and microscopy facilitates the identification of concurrent genital infections and supports appropriate, pregnancy-specific management.

This case report has several limitations. First, the diagnosis of genital herpes was based on clinical features, as direct examination of the lesions by PCR/NAAT, culture, or type-specific HSV serology was not performed. Therefore, HSV infection could not be laboratory-confirmed, and the episode could not be definitively classified as a primary infection. Second, the pregnancy was still ongoing at the time of manuscript preparation; therefore, maternal syphilis serology at delivery and neonatal outcomes were not yet available. These limitations restrict the assessment of long-term maternal and neonatal outcomes in this case.

CONCLUSION

This case emphasizes the importance of comprehensive evaluation and clinical reassessment in pregnant women presenting with genital lesions and vaginal symptoms, as clinical manifestations may evolve and multiple infections may coexist. Genital herpes was clinically diagnosed based on the characteristic genital lesions and a relevant history of herpes in her partner, who also had reactive anti-HSV-1/2 IgM serology; however, virological confirmation was not performed in the patient. The subsequent development of palmoplantar lesions and reactive syphilis serology supported the diagnosis of secondary syphilis. Persistent vaginal discharge prompted KOH examination, which demonstrated yeast cells and hyphae/pseudohyphae, supporting the diagnosis of vulvovaginal candidiasis. Early recognition and pregnancy-appropriate treatment are essential to reduce the risk of maternal and neonatal complications. Appropriate partner evaluation and treatment are also important to prevent ongoing transmission and reinfection. Although a fourfold decline in VDRL titer was observed during follow-up, the ongoing pregnancy limited assessment of long-term maternal and neonatal outcomes.

REFERENCES

1. Garcia MR, Leslie SW, Wray AA. Sexually Transmitted Infections. Treasure Island (FL): StatPearls Publishing; 2026 [cited 2026 12 April]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32809643>.
2. Organisation WH. Sexually transmitted infections (STIs): World Health Organisation; 2025 [updated 10 September 2025; cited 2026 April 12]. Available from: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)).
3. Gregory E, Ely, M D. Trends and Characteristics in Maternal Syphilis Rates During pregnancy: United States, 2016-2022 United States: Centers for Disease Control and Prevention; 2024 [updated 13 February 2024; cited 2026 April 12]. Available from: <https://stacks.cdc.gov/view/cdc/145590>.
4. Hammad WAB, Konje JC. Herpes simplex virus infection in pregnancy - An update. *Eur J Obstet Gynecol Reprod Biol.* 2021;259:38-45. <https://doi.org/10.1016/j.ejogrb.2021.01.055>
5. Mathew Jr J, Sapra A. Herpes Simplex Type 2. Treasure Island (FL)2026 [cited 2026 April 12]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/32119314>.
6. Sewon Kang MA, Anna L. Bruckner, Alexander H. Enk, David J. Margolis, Amy J. Mcmichael, Jeffrey S. Orringer. *Fitzpatrick's dermatology* McGraw-Hill Education 2019.
7. Daili SF, Nilasari H, Makes WIB, Zubier F, Romawi R, Pudjiati SR. Infeksi Menular Seksual Edisi Kelima. Indonesia: Fakultas Kedokteran Universitas Indonesia; 2017.
8. Silva Pereira S, Bussi Rosolen B, Almeida Duraes T, Fermoselle de Vita Silva M, Alves de Britto G, Silva Belo C, et al. Maternal-Fetal Implications of Herpes Virus Infection: An Updated Review. *Diagnostics (Basel).* 2026;16(8). <https://doi.org/10.3390/diagnostics16081147>
9. Winata IGS, Setiawan WA, Widhusadi NLWA, Maharddhika DPGJ, Christyani F, Darmayasa PB, et al. Diagnosis and management of syphilis infection in pregnancy: a literature review. *Indonesian Journal of Perinatology.* 2023;4(1):10-4. <https://doi.org/10.51559/inajperinatol.v4i1.28>
10. Tudor ME, Al Aboud AM, Leslie SW, Gossman W. Syphilis. Treasure Island (FL)2026 [cited 2026 April 12]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30521201>.
11. Disha T, Haque F. Prevalence and Risk Factors of Vulvovaginal Candidosis during Pregnancy: A Review. *Infect Dis Obstet Gynecol.* 2022;2022:6195712. <https://doi.org/10.1155/2022/6195712>
12. Jeanmonod R, Chippa V, Jeanmonod D. Vaginal Candidiasis. Treasure Island (FL)2026 [cited 2026 April 12]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29083806>.
13. Wilms L, Wessollek K, Peeters TB, Yazdi AS. Infections with Herpes simplex and Varicella zoster virus. *J Dtsch Dermatol Ges.* 2022;20(10):1327-51. <https://doi.org/10.1111/ddg.14917>
14. Mancini A, Inchigolo AM, Marinelli G, Trilli I, Sardano R, Pezzolla C, et al. Topical and Systemic Therapeutic Approaches in the Treatment of Oral Herpes Simplex Virus Infection: A Systematic Review. *Int J Mol Sci.* 2025;26(17). <https://doi.org/10.3390/ijms26178490>
15. Leslie SW, Vaidya R. Congenital and Maternal Syphilis. Treasure Island (FL)2026 [cited 2026 April 12]. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/30725772>.
16. Simgamsetty S, Shaik N, Jothinathan MKD, Yarlagaadda P, Penmetcha U. Vulvovaginal Candidiasis in Pregnancy: Pathogenesis, Diagnostic Advances, Therapeutic Strategies, and the Role of Probiotics. *Journal of Pure and Applied Microbiology.* 2026. <https://doi.org/10.22207/jpam.20.3.42>
17. Levina; J, Ocviyanti; D, Adawiyah R. Management of Vulvovaginal Candidiasis in Pregnancy. *Indonesian Journal of Obstetrics and Gynecology.* 2024;12. <https://doi.org/10.32771/inajog.v12i2.1990>
18. Gigi RMS, Buitrago-Garcia D, Taghavi K, Dunaiski CM, van de Wijgert J, Peters RPH, et al. Vulvovaginal yeast infections during pregnancy and perinatal outcomes: systematic review and meta-analysis. *BMC Womens Health.* 2023;23(1):116. <https://doi.org/10.1186/s12905-023-02258-7>