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Recurrent Vaginal Discharge due to Suboptimal Therapy: A Case Study and Management Evaluation

Dyta Loverita*, Deka Miftalia Anugrah Putri, Sarah Nur Fitria Gunawan, Zhafirah Auliarahma
Universitas Negeri Malang, Jl. Semarang No. 5 Malang, Jawa Timur, Indonesia
*Penulis korespondensi, Surel: dytaloverita.fk@um.ac.id

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Abstract
This case report highlights the importance of cytological evaluation in a woman of childbearing age who experienced recurrent vaginal discharge for several months due to previous inadequate management, both in diagnostic workup and in the accuracy of the type and duration of therapy. The patient had received repeated empirical treatments without adequate supporting examinations, leading to only temporary symptom improvement followed by recurrence. Reassessment with appropriate diagnostic evaluation revealed an infection that had not been optimally treated, allowing for the administration of guideline-based therapy accompanied by comprehensive education on treatment adherence and proper genital hygiene. Following this comprehensive diagnostic and therapeutic approach, the vaginal discharge gradually resolved, with no recurrence observed during the monitoring period, underscoring the critical role of accurate diagnosis and appropriate management in cases of recurrent vaginal discharge.

Keywords: recurrent vaginitis; candida infection; cytology; antifungal therapy; cervical leukoplakia

Abstrak
Laporan kasus ini menggambarkan seorang perempuan usia subur yang mengalami keputihan berulang selama beberapa bulan sebagai akibat dari penatalaksanaan sebelumnya yang kurang adekuat, baik dalam hal penegakan diagnosis maupun ketepatan jenis dan lama pemberian terapi. Pasien telah menerima pengobatan empiris secara berulang tanpa didukung pemeriksaan penunjang yang memadai, sehingga perbaikan yang terjadi bersifat sementara dan diikuti oleh kekambuhan. Penilaian ulang kemudian mengidentifikasi adanya infeksi yang belum tertangani secara optimal, sehingga diberikan terapi yang sesuai dengan pedoman serta disertai edukasi menyeluruh terkait kepatuhan pengobatan dan perawatan higiene genital. Setelah dilakukan tata laksana yang tepat, keluhan keputihan berangsur menghilang dan tidak ditemukan kekambuhan selama periode pemantauan, yang menegaskan pentingnya pendekatan diagnostik dan terapeutik yang komprehensif pada kasus keputihan berulang.

Kata kunci: vaginitis rekuren; infeksi candida; sitologi; terapi antijamur; leukoplakia serviks

Introduction

Vaginal discharge is one of the most common gynecological complaints among women of reproductive age and can generally be managed effectively when the underlying etiology is accurately identified (Workowski et al., 2021; WHO, 2023). Physiologically, vaginal discharge represents a normal mechanism for self-cleansing and maintenance of vaginal microbiota balance; however, changes in odor, color, quantity, or consistency, or the presence of accompanying symptoms such as pain, irritation, or pruritus, indicate a pathological condition that may reflect vaginal or cervical infection (Juhi et al., 2024). Despite this, recurrent vaginal discharge remains a significant clinical challenge, particularly due to inadequate initial management and repeated empirical treatment without appropriate diagnostic evaluation, which not only compromises therapeutic effectiveness but also increases the risk of

recurrence, treatment failure, and antimicrobial resistance (Sobel et al., 2016; Workowski et al., 2021). Moreover, recurrent discharge may obscure mixed infections or more serious gynecological conditions if comprehensive assessment is not performed (Donders et al., 2017).

Cervicovaginitis is an inflammatory condition involving both the cervix and vagina, commonly presenting with abnormal discharge, pain, and genital hypersensitivity, and Candida species infection represents one of its major etiologies, ranking second after bacterial vaginosis and accounting for approximately 85–95% of fungal infections in women of reproductive age (Sustr et al., 2020). Cytological detection of Candida species on Pap smear, characterized by the presence of hyphae or yeast forms, demonstrates a sensitivity of up to 88% with a positive predictive value of 100%, supporting its role as a reliable screening tool (Cengiz et al., 2020). Beyond local symptoms, recurrent Candida infections may lead to chronic inflammation that predisposes to epithelial alterations such as leukoplakia, which may mimic or progress to premalignant lesions if left untreated (Donders et al., 2017; Faustino et al., 2025).

Several factors including repeated antibiotic exposure, hormonal fluctuations, disruption of vaginal microbiota, and pregnancy are known to increase susceptibility to infection and recurrence (Sobel et al., 2016; Faustino et al., 2025). Therefore, this case report aims to highlight the importance of comprehensive diagnostic evaluation, guideline-based management, and patient education by presenting the clinical and cytological findings of cervicovaginal candidiasis in a reproductive-aged woman with multidrug-resistant bacterial flora, describing the therapeutic approach using intravaginal metronidazole and nystatin suppositories combined with topical ketoconazole, and emphasizing the role of follow-up cytology in detecting residual inflammation or premalignant lesions such as cervical leukoplakia.

Case Presentation

A 29-year-old divorced woman presented to the Turen Clinic with a history of recurrent vaginal discharge since 2023. The patient has been married for two years, does not use any form of contraception, has a normal menstrual history with a duration of seven days each month, no history of diabetes, and no history of pain or spotting (post-coital bleeding) during sexual intercourse. During her initial consultation with another doctor, she was prescribed antibiotics without undergoing further diagnostic evaluation such as a Pap smear; however, her symptoms did not improve. At a subsequent visit with a different doctor, a Pap smear wasn't performed too, but antibiotics were again prescribed, yielding no clinical improvement despite the patient's adherence to treatment. The patient later goes to SpOG and underwent aerobic culture with antibiotic sensitivity testing, which revealed resistance to multiple antibiotic classes, including penicillins, beta-lactamase inhibitors, cephalosporins, fluoroquinolones, carbapenems, aminoglycosides, and sulfamethoxazole-trimethoprim. A repeat Pap smear demonstrated the presence of *Candida* hyphae, confirming a diagnosis of candidal cervicovaginitis. The patient reported regular menstrual cycles, with the first day of her last menstrual period recorded on January 20, 2025, and had a history of one previous parity. Her most recent routine Pap smear was performed on February 11, 2025, with samples obtained from both the ectocervix and endocervix.

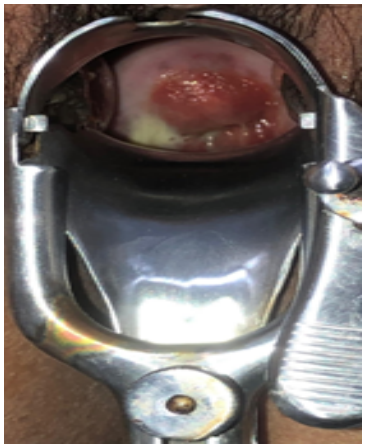


Figure 1. Visualization of the patient's cervix through a vaginal speculum

During the gynecological examination, the cervix appeared inflamed, characterized by hyperemia and edema. The surface of the cervix was red and fragile, and bled easily when touched. Mucopurulent secretions were also found coming out of the cervical canal, consistent with the clinical picture of cervicitis.

The initial cytology report showed benign cellular changes, *Candida sp*., infection, and reactive inflammatory alterations, with no malignant cells identified. She was treated with a combination of intravaginal metronidazole 500mg and nystatin 100.000 IU suppositories administered for one week, repeated monthly for three consecutive months, along with topical ketoconazole cream 2% applied to the vulva. The patient also received counseling on genital hygiene and was advised to continue follow-up care. At the three-month follow-up visit on June 10, 2025, a repeat Pap smear was performed, with samples again obtained from both the ectocervix and endocervix. Clinical examination revealed the presence of leukoplakia. Cytological evaluation demonstrated reactive cellular changes with a nonspecific inflammatory response, and no malignant cells were identified. Additionally, no *Candida* species were observed, and the cytological classification was consistent with Pap smear Class II.

A noted limitation in this case was that the Pap smear method utilized remained conventional rather than liquid-based cytology, and co-testing for HPV DNA was not performed. Consequently, the patient was advised to return for follow-up after one year for a repeat Pap smear using the liquid-based cytology technique combined with HPV DNA co-testing, to achieve higher diagnostic accuracy and considering her associated risk factors.

Investigations

The initial evaluation included a Pap smear, which demonstrated benign cellular changes with evidence of *Candida* hyphae and reactive inflammatory alterations. No atypical or malignant cells were identified. These findings confirmed candidal cervicovaginitis as the cause of the patient's persistent symptoms. To exclude bacterial etiology and guide appropriate management, an aerobic culture and antibiotic sensitivity testing were performed. The culture results revealed multidrug resistance to several antibiotic classes, including penicillins, beta-lactamase inhibitors, cephalosporins, fluoroquinolones, carbapenems, aminoglycosides, and sulfamethoxazole-trimethoprim, supporting the decision to discontinue antibiotics and initiate antifungal therapy. At follow-up, a repeat Pap smear was performed three months after treatment. Cytology showed no evidence of *Candida* hyphae, indicating eradication of the

infection, but revealed cervical leukoplakia and nonspecific inflammatory changes. No malignant cells were detected.

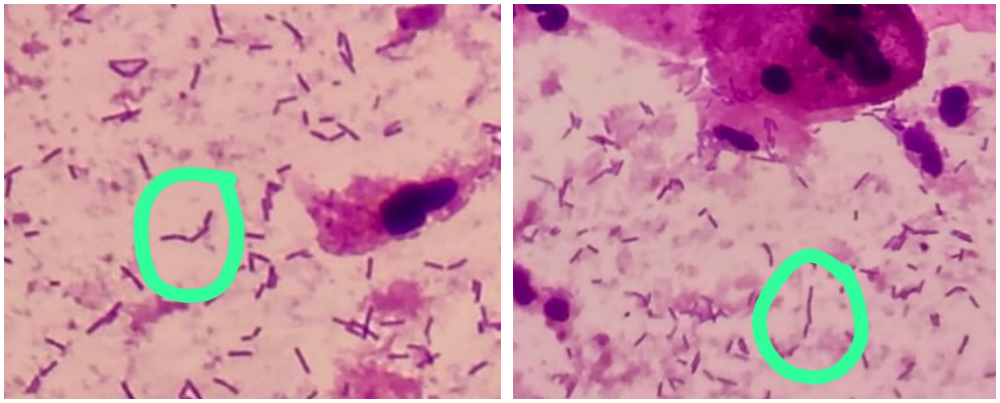
Table 1. Changes in Cervicovaginal Findings Before and After Treatment

Indicators	Initial Examination	Follow-up Examination (3 months)
Pap Smear	Performed: Class 2 Pap smear results were obtained, with signs of inflammation (+), hyphae (+), Candida spp., no malignancy.	Class 2 Pap smear results were obtained, with nonspecific inflammation, no malignancy, and no Candida spp.
Cervical culture	Aerobic culture Gram: Leukocytes, many epithelial cells, 4-5/µL, Gram-negative bacteria, no Candida or Trichomonas found Staphylococcus aureus culture results	-
Resistance	All antibiotic classes resistant except fosfomycin and chloramphenicol	-

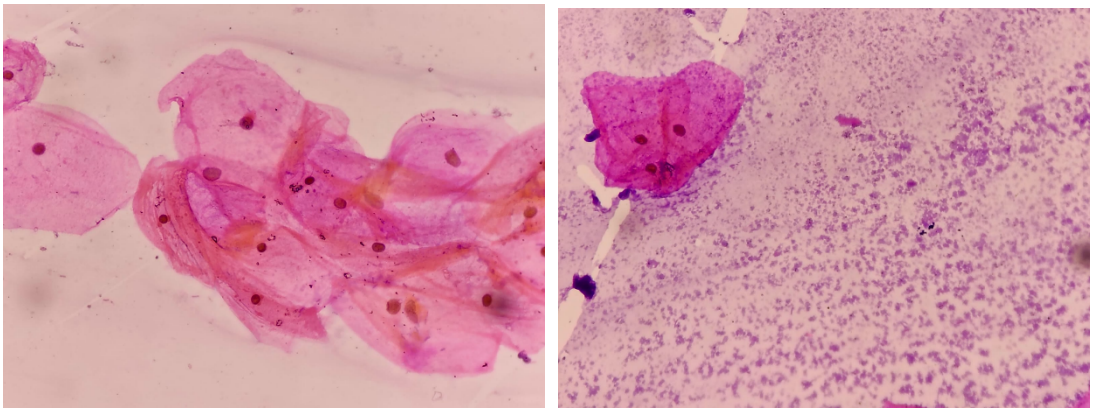
Treatment

The patient received a combination therapeutic regimen aimed at eradicating fungal infection and restoring vaginal microbiota balance. Pharmacological management included intravaginal suppositories containing metronidazole 500mg and nystatin 100.000 IU, administered once daily pervaginam for one week and repeated monthly over a three-month period. Additionally, topical ketoconazole cream 2% was applied to the vulvar area to further reduce fungal colonization and relieve local symptoms.

Non-pharmacological measures emphasized patient education on genital hygiene, change underwear 3–4 times per day and avoid using panty liners, rational avoidance of unnecessary antibiotic use, and lifestyle modifications such as wearing loose-fitting cotton underwear to minimize moisture and reduce fungal overgrowth. The patient was also advised to refrain from sexual intercourse during treatment cycles. A follow-up Pap smear was scheduled three months after therapy to evaluate treatment response and detect any residual lesions.



Figures 2 and 3. Cervical cytology before treatment: visible *Candida* spp. hyphae and bacillary flora in the background mucosa. Hematoxylin–Eosin stain, 400× magnification



Figures 5 and 5. Cervical cytology after treatment: no fungal structures observed, with intact superficial epithelial cells. Hematoxylin–Eosin stain, 400× magnification

Outcome And Follow-Up

At the three-month follow-up, a repeat Pap smear was performed to assess treatment response. Cytological examination demonstrated complete resolution of *Candida* spp. hyphae, confirming successful eradication of the infection. No atypical or malignant cells were identified. On clinical examination, however, a whitish plaque-like lesion was observed on the cervix, consistent with cervical leukoplakia. Cytology revealed non-specific inflammatory changes accompanied by necrotic debris, findings more suggestive of a reparative or irritative process rather than ongoing infection. In light of the leukoplakia, the patient was advised to undergo close surveillance with repeat cytology, and colposcopic evaluation with biopsy was recommended should the lesion persist or show morphological progression. She was counseled on maintaining proper genital hygiene and instructed to promptly report any recurrence of abnormal discharge or unexplained vaginal bleeding**.**

Table 2. Clinical Timeline from Symptom Onset to Follow-up

Time	Clinical Procedure	Result
at month 6	The patient began experiencing recurring vaginal discharge	The discharge was white, had a mild odor, and was sometimes accompanied by itching

at month 5	Consultation at a primary healthcare facility	Empirical antibiotic therapy was given, without laboratory tests or a Pap smear
at month 4	Symptoms improved temporarily but recurred	The vaginal discharge recurred several days after the completion of therapy, and a follow-up examination was performed, with different antibiotic therapies being prescribed
at month 3	The patient tried additional empirical treatment	The improvement was only temporary, and the symptoms recurred
at month 0 (Specialist Consultation)	A complete gynecological examination was performed	The cervix was hyperemic, with mucopurulent discharge; cervicitis was suspected, and a cervical culture and antibiotic resistance test were performed
at month 0	Pap smear and laboratory tests	The Pap smear shows inflammatory cells and a possible fungal infection (Candida spp.). Culture results are positive and resistant to all Ab groups
at month 0-1	Targeted therapy is given based on the test results.	Antibiotic/antifungal combination according to guidelines; patient education regarding compliance and genital hygiene
at month 1	First follow-up	Vaginal discharge has decreased, no abnormal discharge
at month 3	Second follow-up	No recurrence, cervix appears normal, and no fungal infection is detected

Discussion

Candidal cervicovaginitis remains one of the leading causes of abnormal vaginal discharge in women of reproductive age, with *Candida albicans* responsible for the majority of cases (Tasik, 2016). Under normal conditions, *Candida* spp. is part of the commensal vaginal flora in small numbers, coexisting with lactobacilli and other microorganisms that maintain vaginal pH and immune balance (Achkar et al., 2010). However, when this equilibrium is disrupted, *Candida* can proliferate and shift from its yeast form to a hyphal form, which is more invasive and capable of adhering to epithelial cells (Mayer et al., 2013). This morphological transition not only increases tissue penetration but also enhances the pathogen's ability to evade host immune responses, contributing to persistent or recurrent infections.

Several predisposing factors play an important role in this pathogenic shift. Repeated or prolonged antibiotic use reduces the protective lactobacillus population, creating an ecological niche favorable for *Candida* overgrowth (Paramitha et al., 2018). Hormonal changes, such as those associated with pregnancy or contraceptive use, can alter vaginal glycogen and pH, further predisposing to infection (Harminarti, 2021). Diabetes mellitus, through increased

glucose in vaginal secretions, provides a nutrient-rich environment that supports fungal growth (Achkar et al., 2010). Immunosuppressive conditions and poor genital hygiene also weaken host defenses, enabling recurrent or refractory infections. The diagnosis of candidiasis in clinical practice often relies on a combination of symptoms, physical examination, and confirmatory tests. In this case, Pap smear cytology proved to be a pivotal diagnostic tool. Despite its traditional use for cervical cancer screening, Pap smear also allows visualization of fungal elements such as hyphae and pseudohyphae, with reported sensitivity up to 88% and a positive predictive value of 100% (Avwioro et al., 2012). The test is inexpensive, widely available, and minimally invasive, making it an effective screening method in resource-limited settings. Importantly, in this patient, Pap smear confirmed candidal infection after several failed courses of antibiotics, preventing further unnecessary antibiotic exposure.

Culture and sensitivity testing provided additional value by identifying multidrug-resistant bacterial flora, which explained the lack of response to antibiotics and reinforced the decision to discontinue them (Surbaji et al., 1999). This finding underscores the importance of antimicrobial stewardship, as empirical antibiotic use without proper microbiological confirmation can contribute to resistance, treatment failure, and disruption of the normal vaginal ecosystem. Therapeutically, the patient responded favorably to a combination of topical ketoconazole cream and intravaginal metronidazole with nystatin suppositories. This regimen provided broad antifungal coverage and targeted both local mucosal colonization and symptomatic inflammation (Shetapy et al., 2022). The absence of fungal hyphae on repeat cytology confirmed eradication of the infection, demonstrating that combination topical therapy can be highly effective when administered for the recommended duration. Equally important was patient education regarding genital hygiene, avoidance of unnecessary antibiotics, and lifestyle modifications, which are critical in reducing recurrence rates (Harminarti et al., 2021).

A notable clinical observation was the development of cervical leukoplakia after infection resolution. Cervical leukoplakia, characterized as a white, non-removable plaque on the cervix, is not a specific diagnosis but rather a descriptive finding. It may represent benign hyperkeratosis secondary to chronic irritation, but it can also signal premalignant changes such as squamous intraepithelial lesions. In this case, cytology revealed no atypical or malignant cells, which was reassuring. Nonetheless, the persistence or progression of such lesions warrants close surveillance. Current clinical guidelines recommend repeat cytology and colposcopy, with biopsy of suspicious or persistent lesions, to exclude dysplasia or early malignancy. This case highlights several important clinical lessons. First, inappropriate or prolonged antibiotic use in recurrent vaginitis should be avoided, as it may not only fail to resolve symptoms but also promote resistance and disrupt protective microbiota. Second, Pap smear and culture remain invaluable diagnostic tools for distinguishing fungal infections from bacterial or mixed etiologies. Third, targeted antifungal therapy, especially in combination regimens, can achieve complete eradication and symptom resolution. Finally, post-treatment surveillance is essential, as chronic or recurrent infections may predispose to epithelial changes with premalignant potential, such as leukoplakia.

Empirical therapy administered repeatedly without adequate supporting tests can lead to failure to eradicate pathogens, increase the risk of recurrence, and potentially trigger microbial resistance. In addition, this approach can delay diagnosis of underlying conditions, including mixed infections or premalignant cervical changes, thereby posing a risk of long-term

complications. Pap smears play an important role not only in cervical cancer screening, but also as a tool for assessing inflammation and detecting cellular changes due to infection. In cases of recurrent vaginal discharge, Pap smears help establish a more accurate diagnosis, distinguish between bacterial, fungal, or mixed infections, and guide more appropriate and specific treatment choices. Follow-up after therapy is essential to ensure resolution of symptoms, monitor therapeutic response, and prevent recurrence. Regular monitoring allows for early detection of treatment failure or recurrent infection, while also providing an opportunity to reinforce patient education regarding treatment adherence and proper genital hygiene practices.

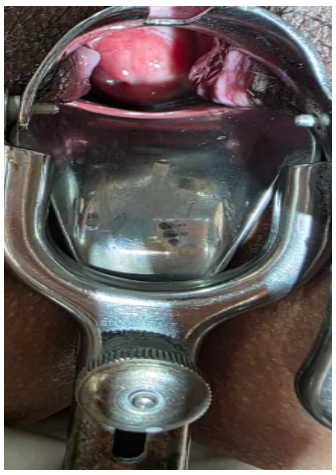


Figure 6. Vaginal and cervical appearance after three months of treatment, showing a clean mucosal surface without discharge or visible plaques, indicating successful resolution of infection

Conclusion

Recurrent vaginal discharge should be regarded as a warning sign of prior treatment failure and warrants a comprehensive re-evaluation of the diagnosis, predisposing factors, treatment adherence, and therapeutic strategy. A rational diagnostic approach is essential before repeated administration of antimicrobial therapy, as the use of antibiotics or antifungal agents without confirmation of the underlying etiology risks incomplete pathogen eradication, increased recurrence, and the development of microbial resistance. Moreover, repeated empirical treatment may delay the identification of mixed infections or premalignant cervical cellular changes that require specific management. Therefore, guideline-based management supported by appropriate diagnostic examinations, such as Pap smears and vaginal cultures or swabs, combined with adequate patient education, is crucial to ensure accurate diagnosis, appropriate therapy selection, optimal clinical outcomes, and prevention of future recurrence.

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