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Case Report

Recurrent Vulvovaginal Candidiasis due to Irrational Doxycycline use by a Teenager: Treatment and Health Education

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Abstract

Abstract: Vulvovaginal candidiasis (VVC) is a common, discomforting, and embarrassing condition that can recur in healthy women. The irrational use of antibiotics is one of its often unexplored causes by primary care physicians. An 18-year-old university undergraduate presented with a three-day history of vulvovaginal itching and discharge, which had occurred repeatedly. She was evaluated and diagnosed with recurrent vulvovaginal candidiasis, associated with the recurrent use of doxycycline. She was successfully managed with oral fluconazole and received appropriate patient education. Primary care physicians should thoroughly explore drug use history in healthy-looking women presenting with recurrent VVC and offer appropriate patient education.

Key Words: Vulvovaginal candidiasis, Doxycycline, Teenager, Adolescent, Irrational drug use.

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Introduction:

Vulvovaginal candidiasis (VVC) is a common discomforting and embarrassing condition in women.[1] It is a yeast infection that can recur in healthy-looking women, with 75%-80% of the female population experiencing at least one episode during their lifetime.[2]Irrational use of antibiotics is one of its salient causes that is often unexplored by primary care physicians hence the opportunity for proper patient education is missed.[2]This case report highlighted the importance of drug use history in managing recurrent VVC and addressed the local myth that VVC is acquired from toilet use.

Case Report:

She was an 18 year old university undergraduate. She started having excessive vaginal discharge which was of sudden onset, associated with intense itching and burning sensation 3 days prior to presentation. The discharge was said to be copious causing her to change her panties up to 2-3 times in a day. It was off-white in colour, cheese-like in consistency and not foul smelling. The associated itching and burning sensation were progressive in intensity, worse at night while lying down preventing her from sleeping. She found temporary relief by washing her vulva with warm water and compulsive scratching. She had associated burning sensation during urination, however there was no increase in frequency, change in the urine colour or volume. There was no history of douching, use of medicated soaps, or feminine hygiene products, and she maintained good menstrual hygiene with regular sanitary pad changes. She used only cotton panties and had no history of steroid use or pregnancy.The patient admitted to taking doxycycline capsules (100mg) twice daily for periods of 3-4 weeks intermittently (a suggested treatment from her girlfriend) for her pimples. She had no history of fever, lower abdominal pain, nausea, or vomiting. This episode was the sixth occurrence in one year, prompting her to seek medical advice. She did not present to the hospital during the past episodes, she had self-treatment with over the counter vaginal creams. She believed her condition was due to a "toilet infection," a common local myth suggesting VVC was acquired from using public toilets.

On examination, she was a healthy-lookinglight complexioned woman, with hyperpigmented spots and multiple pustular rashes on the face, chest and back. She had a normal female external genitalia at Tanner stage V, with cheesy, non-foul smelling vulvovaginal discharge. The vulva was erythematous with areas of excoriations. The urethral meatus was hyperaemic. The hymen was present precluding digital and speculum examination. Vaginal swab was taken for microscopy, culture and sensitivity. The other systems were normal. Her laboratory result showed a heavy growth of *Candida albicans* after 24hour incubation, urinalysis parameters were normal, fasting blood glucose was 4.8mmol/L, and retroviral screen was non-reactive. The patient was diagnosed with recurrent vulvovaginal candidiasis and acne vulgaris. She was treated with a single dose of oral fluconazole 150 mg. Upon follow-up two days later, she was symptom-free. She was educated about the relationship between her doxycycline use and recurrent VVC, learning that doxycycline disrupted her vaginal microflora, depleting protective Lactobacilli and allowing Candida overgrowth. The timeline of her symptoms coincided with the periods she used doxycycline. She was counselled on rational antibiotic use and reassured that acne is a common, hormonally induced condition in adolescents that typically resolves with age. Education on facial care, underwear hygiene, and personal hygiene was provided. Importantly, she was informed that VVC is not acquired from toilet use. No recurrence was noted in subsequent quarterly follow-up visits for 12 months.

Discussion:

Vulvovaginal candidiasis (VVC) is an exceedingly common mucosal infection of the lower female reproductive tract that is caused mostly by the polymorphic opportunistic fungus *Candida albicans*.[1] It is one of the most common fungal diseases in normal healthy women.[2] Globally it has been estimated that 75%- 80% of the female population suffers at least one episode during their life time.[2] Candida induced vulvovaginitis is quite common in our environment. A hospital based study in Port Harcourt, South-South

Nigeria, got a prevalence of 40% among women attending the gynaecology clinic.[3] It can be recurrent in most women.[4]Our patient presented with her sixth episode in one year. Episodes greater than three in a year are defined as recurrent which affects nearly 8% of women globally.[1,3]Predisposing factors such as uncontrolled diabetes mellitus, immunosuppression regimens, antibiotics therapy, sexual activity, pregnancy, as well as behavioural factors such as use of high oestrogen containing oral contraceptives, use of sodium glucose cotransporter 2 (SGLT2) inhibitors and intrauterine devices have been suggested to promote the onset of VVC.[1,3,4] She was taking doxycycline, an antibiotic for her pimples and her timeline showed the relationship between her use of doxycycline and the appearance of her symptoms. Another hospital based study reported significant relationship between recent use of antibiotics and development of VVC.[2]

VVC is characterised by itching, burning, curd-like vaginal discharge, and erythema.[5] She presented with all these distressing and embarrassing symptoms which caused her to miss lectures. Acne vulgaris is a common skin condition, which affects most adolescents at some point in their lives. It has been found to have a significant impact on their psychological well-being and has been associated with depression and suicide ideation.[6] As an adolescent she was faced with this challenge and was determined to fight it hence she followed her friend's advice to take doxycycline twice daily. The use of antibiotics have been found to be the cause of VVC in many healthy-looking women. This has been shown to cause dysbiosis in the vaginal microflora; there is depletion of the protective Lactobacillus population and the proliferation of the candida yeast which was otherwise a commensal now infecting the walls of the lower genital tract hence the manifestation of symptoms (discharge, itching, burning sensation and soreness).[4]

The current guideline on the diagnostic procedure to detect VVC should involve the combination of clinical features and the microscopic detection of (pseudo) hyphae and expanded to cultural methods in unclear cases.[7,8]This was followed in confirming the diagnosis of VVCin the index patient. Clinically based diagnosis of VVC has an unacceptably high false-positive rate which may encourage continued presumptive treatment with its attendant risks. Clinical evaluation and laboratory culture of vulvovaginal specimen as done in this case should be the standard diagnostic method.[9]

The current guideline advocated that acute VVC should be treated with topical or oral antimycotics (depending on the individual need of the woman). She was given these options and she preferred the oral route hence she received oral fluconazole 150mg. Oral treatment with a single dose of fluconazole is effective for treating uncomplicated VVC as seen in this case.[10] Studies have also shown that treatment of acute VVC with topical or oral Imidazole derivatives, polyenes and ciclopiroxolamine shows equivalent success.[7]Probiotics appear to be beneficial in the prevention of VVC but the evidence is limited.[7]

Conclusion:

Irrational use of antibiotics can silently cause recurrent VVC. Primary care physicians should thoroughly explore drug use history in healthy-looking women presenting with recurrent VVC and provide appropriate patient education to prevent recurrence. It is also important to debunk common myths, such as the belief that VVC is acquired from toilet use, to ensure patients receive accurate information and effective treatment.

Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Conflict of Interest: None declared.

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