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Case Study

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IMPORTANCE OF EVALUATING FOR BACTERIAL VAGINOSIS IN A PATIENT OF RECURRENT UTI -A CASE REPORT

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ABSTRACT

Recurrent urinary tract infections are a challenging condition to treat pertaining to various risk factors and the complex anatomical and physiological relationship of urethra to vagina and gut. Bacterial vaginosis is often overlooked as a cause of recurrent Urinary tract infections in women. Here we present a case of recurrent urinary tract infection in a post-menopausal woman which responded to treatmentafter underlying Bacterial vaginosis was treated.

KEYWORDS: Vaginosis, Pathogenesis, Microbiota, Pyelonephritis, Probiotics.

INTRODUCTION

Urinary tract Infections (UTI) constitute a major part of the morbidity and economic burden associated with bacterial infections in women, especially post-menopausal women. Anatomical and physiological risk factors predispose women to UTIs. Simple UTIs in nonpregnant immuno-competent females have been estimated to occur with as high as 0.7% infections per person per year. Fifty percent of females will have at least one UTI at some stage of life.[1] Estrogen deficiency, diabetes mellitus, sexual activity, urinary incontinence, structural abnormalities, and history of UTIs are some of the major risk factors for recurrent UTIs in postmenopausal women. Managing recurrent UTIs poses challenges like the choice of antibiotics and response to treatment. UTIs are predominantly caused by uro-pathogenic Escherichia coli (UPEC), which is responsible for over 80% of community-acquired infections, while healthcare-related infections are associated with Staphylococcus, Klebsiella, Enterobacter, Proteus, and Enterococcus.[2] A study done by Pabech et al reported that colonization with E. coli was inversely correlated to the presence of Lactobacillus.[3] We here present a case report on the importance of evaluating bacterial vaginosis as part of a comprehensive diagnostic approach to treating recurrent UTIs.

CASE PRESENTATION

A 60-year-old female presented to the outpatient Medicine department with complaints of fever associated with chills & rigors and burning micturition for one month. She reported taking over-the-counter medications but with no relief. The patient reported having no comorbidities or any other significant medical history.

The patient was admitted and evaluated thoroughly. Her urine routine revealed manypus and epithelial cells, and after sending her urine culture, she was treated empirically on the lines of UTI, but with no relief to her symptoms. 5 days later, her urine culture and sensitivity report were positive for the growth of Escherichia coli, sensitive to amikacin, cefepime, cefoperazone+sulbactum, colistin, meropenem, nitrofurantoin, piperacillin + tazobactum and the antibiotics were changed accordingly, after which the patient became afebrile and was discharged on outpatient treatment. In the subsequent visit, she reported feeling better but still complained of frothy urine. Hence, the urine routine was repeated which still revealed many pus cells, and the patient was readmitted for the administration of higher antibiotics, but she still complained of frothy urine. MRI abdomen was also done as a part of the diagnostic plan which revealed no abnormality. A gynecology consultation was then taken, and the patient underwent a vaginal smear, which revealed vaginal dysbiosis, and a diagnosis of bacterial vaginosis was made based on Amsel's criteria. She was treated with the regimen for bacterial vaginosis (We administered her clindamycin 300mg bd for 7 days) following which the patient reported feeling better and was discharged. The patient on follow-up was

asymptomatic.

DISCUSSION

Patients with negative urinary cultures or patients who have persistent symptoms should be assessed for other etiologies. Various studies have shown that a woman's vaginal microbiota affects her susceptibility to UTIs.[4] In a study conducted by Yoo J, et al, it was shown that the raised number of UTIs in menopause might be due to decreased estrogen levels and associated physical changes. Post menopause, estrogen reduction and changes in Lactobacillus are thought to promote UTI. Bacterial vaginosis results from overgrowth of anaerobic bacteria and Gardnerella vaginalis, with loss of normal vaginal flora, specifically lactobacilli.[5]

Even though G. vaginalis is a natural component of the normal vaginal flora, excessive proliferation of this bacterium can result in Bacterial vaginosis. These vaginal bacteria can enter the urinary tract by mechanical transfer from nearby sites. The pathogenesis for this has been studied through mice models where the effects of the vaginal bacterium were observed during latent E. coli infection within intracellular epithelial reservoirs in C57/Bl6 mice (from a prior experimental infection), to investigate possible triggers of recurrent E. coli UTI arising from these reservoirs. In these mice, two exposures to G. vaginalis triggered E. coli emergence into the bladder lumen, resulting in recurrent UTIs. G. vaginalis exposure also increased the occurrence of severe E. coli kidney infections. G. vaginalis caused these effects even after being rapidly eliminated from the urinary tract (by 12 hours in most mice). Even in the absence of latent E. coli, G. vaginalis caused apoptosis and exfoliation of the bladder epithelium and caused kidney damage by an IL-1-receptor- mediated mechanism. These findings suggested that G. vaginalis could be an important trigger of recurrent UTI and a risk factor for pyelonephritis in women.[6]

The role of gut microbiota in pathogenesis and the intricate and complex interactions between microbiota in the vagina and urinary tract emphasize the importance of evaluating for bacterial vaginosis in women presenting with recurrent UTIs.

Evaluating for bacterial vaginosis in women with recurrent UTIs might also be cost- effective, in that it might reduce the risk of associated complications. This opens the way to study and evaluate how we can implement this knowledge in risk reduction and designing preventative approaches towards recurrent UTIs in post-menopausal women.

However, further studies are required on daily probiotic use to maintain a healthy urogenital flora and for the prevention of UTIs.

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