



## Case report

*Gardnerella vaginalis* bacteremia in an elderly healthy male

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## ARTICLE INFO

## Article history:

Received 1 May 2020

Received in revised form 7 May 2020

Accepted 7 May 2020

## Keywords:

*Gardnerella vaginalis*

Urinary tract infection

Infection

Bacteremia

## ABSTRACT

*Gardnerella vaginalis* is an anaerobic gram variable organism, which commonly causes bacterial vaginosis in women. It is uncommon for this organism to cause a urinary tract infection in males. We present a case of *G. vaginalis* bacteremia in the setting of urolithiasis in an otherwise immunocompetent elderly male. He was treated with metronidazole alone for a 10-day course with resolution of symptoms and negative repeat blood cultures. It is important for health care professionals to acknowledge this rare cause of infection in males and adequately treat to prevent increased morbidity and mortality.

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## Introduction

*Gardnerella vaginalis* is an anaerobic gram variable organism classically known to cause bacterial vaginosis in women. Disruption of normal vaginal flora rise in pH > 4.5 and depletion of *Lactobacillus* species are thought to be precursors for the infection [1]. However, there have been a few reported cases where men can also be infected with this bacterium and develop urinary tract infections or bacteremia [2]. Here we present a rare case of bacteremia with the isolated organism to be *G. vaginalis* in an elderly healthy male.

## Case presentation

A 77-year-old male status post coronary artery disease (status post coronary artery bypass graft) and percutaneous coronary intervention and colon cancer (status post hemicolectomy) presented to the emergency department for altered mental status. For weeks prior to admission, the patient reported decreased frequency of urination without hematuria or dysuria. On admission the patient had developed confusion, disorientation, and fever. His vital signs were temperature 101.1 degrees Fahrenheit, pulse 84 beats per minute, respiratory rate 16 breaths per minute, blood pressure of 173/72 mm Hg, and oxygen

saturation of 96 % on room air. Physical examination was unremarkable. Laboratory data at that time was significant for a white blood cell (WBC) count of 11,300 cells/mm<sup>3</sup>, blood urea nitrogen 29 mg/dL, and creatinine 2.51 mg/dL. Lactic acid was elevated at 2.7 mg/dL, repeat testing trended down to 0.91 mg/dL and procalcitonin was 2.10 ng/mL. Urinalysis showed a cloudy urine with too numerous to count WBCs. Urine cultures and two sets of blood cultures were taken.

A computer tomography (CT) scan of the head without contrast showed chronic changes without evidence of acute intracranial process and chest x-ray was normal. He was started on intravenous (IV) ceftriaxone 1 g daily for suspected urinary tract infection and IV fluids were started for his acute kidney injury. Renal ultrasound showed mild left hydronephrosis and mass-like heterogeneous structure in the urinary bladder. At this point, urography with and without contrast was done per urology recommendation and it showed a low signal intensity structure within the bladder eccentric to the left at the base measuring 2.3 × 2.5 × 2.6 cm without enhancement following the administration of contrast most consistent with a bladder calculus. Urology recommended no acute intervention.

Initial blood cultures reported gram positive anaerobic rods, and eventually was identified using Matrix-Assisted Laser Desorption/Ionization-Time of Flight (MALDI-TOF) mass spectrometry as *Gardnerella vaginalis*. However, urine culture was negative for any growth. Therefore, ceftriaxone was discontinued, and the patient was started on oral metronidazole 500 milligrams three times a day for 10 days. He remained in stable condition and repeat

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blood cultures returned negative. He was ultimately discharged in good health without any complications.

## Discussion

*Gardnerella vaginalis* is a common normal vaginal flora in females. It also plays a role in the pathogenesis of bacterial vaginosis (BV), the most common cause of abnormal vaginal discharge in females, in the setting of a reduction in the concentration of *Lactobacillus* species. Symptomatic women with BV can be treated with either metronidazole or clindamycin [2,3]. Complications with extra-vaginal involvement in women have been noted in the setting of endometritis, chorioamnionitis, and intra-abdominal abscess after pelvic/gynecologic surgery [4]. These extra-vaginal infections are reported to be polymicrobial rather than isolated *Gardnerella* infection [4].

The existence and prevalence of *G. vaginalis* in the male urogenital tract is not well studied yet [4]. In a study by Holst et al., the urethral colonization with *G. vaginalis* in men was reported to be 4.5 % (10 out of 309) [5]. Several studies including one by Swidsinski et al. suggested the role of unprotected sexual encounters in *Gardnerella* transmission between males and females [4,6]. However, *G. vaginalis* disease in male is very uncommon and only scarce cases have been reported with bacteremia [2].

Most *G. vaginalis* bacteremia cases were noted in men with chronic alcohol use, immunosuppression, transurethral prostatectomy, nephrolithiasis/uroolithiasis, urethral stenting, or stricture [2]. There are still no established guidelines defining the treatment of extra-vaginal *Gardnerella* infections [4]. However, most reported cases were treated with metronidazole in combination with other antimicrobial agents as penicillin, cephalosporins, aminoglycosides, erythromycin, and ceftriaxone [2,4]. The total duration of antimicrobial treatment for *Gardnerella* bacteremia in the setting of urinary tract disease was between 10–14 days in most of the reported cases [4].

We herein present a rare case of *G. vaginalis* bacteremia in the setting of urolithiasis in an otherwise immunocompetent elderly male. Our patient was treated initially with IV ceftriaxone empirically for suspicious urinary tract infection followed by metronidazole alone once blood cultures grew *G. vaginalis* for 10 days. Ultimately after finishing his antibiotic course, there was resolution of symptoms and negative repeat blood cultures.

## Conclusion

Our unique case demonstrates an unusual extra-vaginal *G. vaginalis* infection with bacteremia in a previously healthy, immunocompetent elderly male. Physicians must consider *G. vaginalis* in their differentials in the setting of a slow-growing

gram-variable rod in blood or urine in a male patient with/without urogenital disease. We also emphasize the importance of proper microbial isolation for optimal treatment in such cases. However, further studies are needed to establish guidelines regarding the optimal treatment of extra-vaginal *G. vaginalis* infections.

## Consent

The patient described in the case report had given informed consent for the case report to be published.

## Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## CRediT authorship contribution statement

**Nasam Alfraji:** Visualization, Writing - original draft, Writing - review & editing. **Steven Douedi:** Visualization, Writing - original draft, Writing - review & editing. **Arda Akoluk:** Visualization, Writing - original draft, Writing - review & editing. **Jaraad Dattadeen:** Visualization, Writing - original draft, Writing - review & editing. **Lito Fune:** Writing - review & editing. **Edward Liu:** Writing - review & editing.

## Declaration of Competing Interest

The authors declare no conflict of interest.

## Acknowledgment

Not applicable.

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