

Association of *G. Vaginalis* with Female UTI

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Received date: June 15, 2015; Accepted date: June 16, 2015; Published date: June 22, 2015

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Editorial

Gardnerella vaginalis is a fastidious, beta-hemolytic, nonmotile, unencapsulated, rod-shaped bacterium. Originally named *Haemophilus vaginalis* by Gardner and Dukes [1], the organism was renamed *Corynebacterium vaginale* by Zinnemann and Turner in 1963, on the basis of a Gram stain reaction and cell morphology [2]. Subsequent extensive taxonomic studies using biochemical, DNA hybridization assays, and electron microscopy and 16S rRNA gene sequences supported the current taxonomic designation of *G. vaginalis* and indicated that this bacterium is closely related to the genus *Bifidobacterium*. It secretes a toxin vaginolysin as a major virulence factor of *G. vaginalis*. Vaginolysin (VLY), a proteinaceous toxin that lyses human red blood cells and vaginal epithelial cells, is a member of the cholesterol-dependent cytolysins (CDCs) family of pore-forming toxins which is found in five different genera of Gram-positive bacteria. CDC or VLY toxin monomers bind to cholesterol-rich membranes and form oligomeric transmembrane pores causing lysis of the eukaryotic cells. Immunoglobulin A-mediated immune responses to the VLY occur during BV and are useful as a marker of the disease.

G. vaginalis association has also been implicated detected in intraamniotic and chorioamniotic infections, pelvic inflammatory disease and bladder infection. Some reports have indicated its co-occurrence with vertebral osteomyelitis and discitis, retinal vasculitis, acute hip arthritis and bacteraemia.

G. vaginalis infections are more associated with women than men. A possible reason for this is the presence of vaginal inclusion epithelium in the region of the bladder trigone in post pubertal women. Similar areas of squamous epithelium are not seen in the male bladder. Fairley and Birch suggested that the ability of *G. vaginalis* to attach to urogenital squamous epithelium might provide a means of migration from vaginalis to attach to urogenital squamous epithelium might provide a means of migration from the vagina and thus determine the site of primary colonization within the bladder. They observed clue cell-like squamous epithelial cells in bladder urine from women infected with *G. vaginalis*. Also, clue cells were seen in

numbers exceeding 104 cfu/ml in some midstream urine specimens [3]. Bladder washout localization tests performed by Lam et al. showed that *G. vaginalis* was present in the kidneys of 11 of 15 women with renal disease. In another study, *G. vaginalis* was cultured from samples of bladder urine from 22 women and its kidney involvement was demonstrated in 12 of them. A 9-year study on nonpregnant women with acute urinary symptoms was reported in patients from Melbourne. Urine collected by suprapubic aspiration from 561 patients with bacteriuria yielded 28 bacterial species, many of which were isolated infrequently.

G. vaginalis was recovered from 208 cultures and 311 contained *Ureaplasma urealyticum*. Both the organisms were isolated from 74 aspirated urines. Counts of *G. vaginalis* (cfu /ml) in urine were between 102 and 104 in 42 cultures, between 104 and 105 in 48 cultures, and >105 in 118 cultures [4]. Wilkins et al. (1989) studied interstitial cystitis in 19 women and 1 man. *G. vaginalis* was recovered from bladder biopsies and also cystoscopic and midstream urine specimens from five patients and electron microscopic examination of one biopsy specimen revealed bacteria embedded in the vesical mucosa, which indicated that *G. vaginalis* was not an innocent colonizer of the bladder urine from cystoscopic and/or midstream urine specimens from four others [5].

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