Case Report

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Microbiology Section

Co-Infection of Herpes Genitalis with Corynebacterium amycolatum: A Rare Case Report from the District of Western Maharashtra, India

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ABSTRACT

Diphtheroids, being a part of the commensal flora, have long remained neglected as mere contaminants till their recently reported increased rate of isolation evidenced their potential as nosocomial pathogens, especially in immuno compromised patients.

This report is a case of a *Corynebacterium amycolatum* secondary infection over ulcers of the herpes genitalis infection, mild Pelvic Inflammatory Disease (PID) and vaginal candidiasis in a 55-year old female who was suffering from uncontrolled diabetes mellitus, points to the 'pathogenetic' significance of diphtheroids. This thereby could guide the clinicians towards an appropriate therapy.

Key Words: Diphtheroids, *Corynebacterium amycolatum,* Herpes genitalis

INTRODUCTION

Diphtheroids, till recently, have been dismissed as mere contaminants, they being a part of the commensal flora. However, recently, there have been reports of their increased rate of isolation, especially in immunocompromised hosts [1]. Hence, there is a need for awareness of their potential as nosocomial pathogens in view of the anticipated future increase of immunocompromised hosts such as diabetics, transplant recipients, HIV infected, cancer afflicted, elderly, etc.Our present report on the isolation of *Corynebacterium. amycolatum (C. amycolatum*) from the ulcers which were caused by the only herpes genitalis in a diabetic patient, further corroborates this trend. The patient's consent form and ethical clearance have been obtained.

CASE REPORT

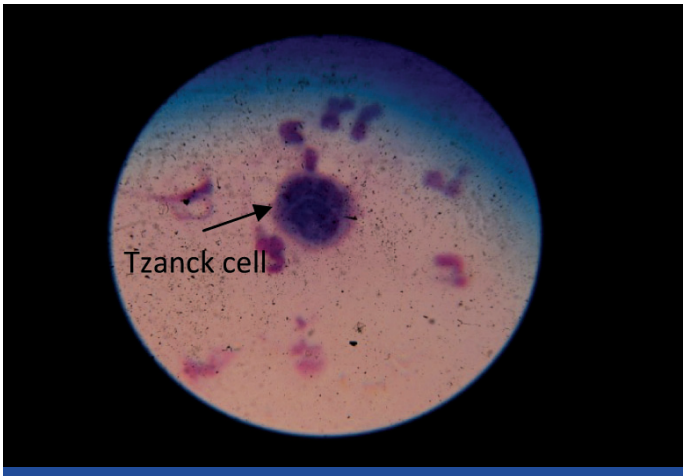
A 55-year old female, a known diabetic who was on irregular treatment, was admitted on transfer to the Dermatology Ward from the Gynaecology Ward, with multiple (over three dozen) ulcers which presented diffusely over the external genitalia (labia, introitus) and the surrounding skin, which included the upper inner thighs. The ulcers appeared in crops over the preceding week and were soft, undermined, non-indurated, painful and non-itchy with a copious malodorous mucoid discharge. Few intact vesicles were interspersed among the ulcers [Table/Fig-1].

The per speculum examination by the gynaecologist didn't reveal any vaginal ulcer or mucopurulent discharge. However, a Curdy white vaginal discharge was present. The bilateral inguinal lymph nodes were enlarged (1-2 cm), tender and discrete. She had low grade (100ºF) fever and general malaise. Her pulse was 96/min and her blood pressure was 120/80 mm of Hg. Her systemic examination was within normal limits, except for lower abdominal tenderness.

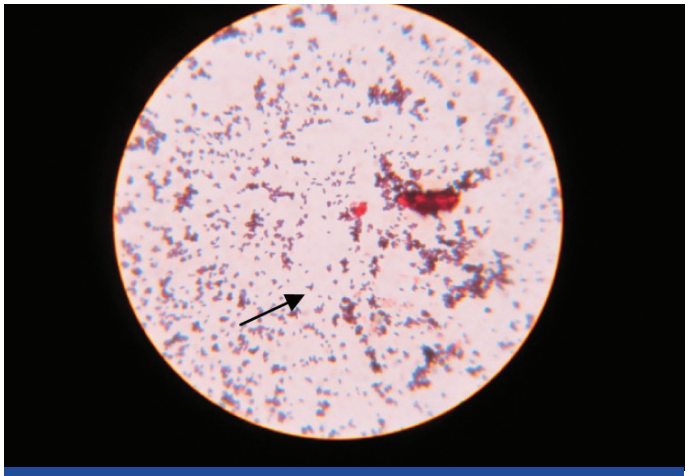
She was married for 35 years, has three children had no history of miscarriage or abortions; and denied a history of any extramarital sexual exposure. The patient gave a history of attaining menopause at the age of 45 years and undergoing hysterectomy 5 years ago, when was also diagnosed to have diabetes mellitus, for which she did not take any regular treatment.

Her laboratory investigations showed haemoglobin -12.9 gm%, total cell count -8,600/mm^3, neutrophil count- 65% and platelet count- 2.5 lakhs /mm^3. Her sugar profile was as follows: fasting -220 mg%, post-prandial 1- 256 mg% and post-prandial 2- 260 mg%. The Tridot for HIV and VDRL were non-reactive. The 10% KOH examination of the vaginal discharge revealed budding yeast cells. Subsequently, the mycological tests were positive for *Candida albicans*. The gram stained smear of pus from the external genitalia showed numerous polymorphonuclear leucocytes and gram positive (intra-cellular and extracellular) bacilli with palisade as well as cuneiform arrangements. The Giemsa staining showed the Tzanck cells [Table/Fig-2] which is characteristic of Herpes. Diphtheroids were recovered in pure culture on blood agar after

[Table/Fig-1]: External genitalia of the female patient showing pustular lesions with copious mucoid discharge, not vaginal from ulcers



[Table/Fig-2]: Giemsa stain of pus smear showing pus cells and a large multinucleated Tzanck cell (1000X)



[Table/Fig-3]: Gram stain of colony smear showing Gram positive thin rods with Chinese letter arrangement (1000X)

24 hours. The colonies were small, circular, white, dry, waxy and opaque. They were non-acid fast, non-motile and non-spore forming. The Gram staining of the smears from the colonies revealed a 'Chinese letter' pattern [Table/Fig-3]. The samples were repeated 3 times, but they revealed similar colonies in the pure culture. The organisms were found to be catalase positive, oxidase negative, urease negative and acid producers during glucose fermentation.

The preliminary diagnosis of *Corynebacterium* species which was made, based on microscopy and the morphological and the biochemical characteristics of the colonies, was subsequently confirmed by the VITEK-2 system version 05.02 (BioMerieux), which identified this strain with a very good profile acceptance (99%) as *Corynebacterium amycolatum*. The antimicrobial susceptibility was determined by the disc diffusion method on blood agar as per the Clinical and Laboratory Standard Institute (CLSI) and the British Society for Antimicrobial Chemotherapy (BSAC) guidelines [2,3]. The isolate was sensitive to vancomycin, erythromycin, ciprofloxacin, cefuroxime and gentamicin and it was resistant to cotrimoxazole.

The response to the treatment with acyclovir, cefotaxime, metronidazole, doxycycline and fluconazole was excellent, with re-epithelization of the ulcers and regression of the lymph nodes as well as an improved genital health. Her maintenance therapy against hyperglycaemia is being worked up after an initial adequate control by insulin therapy.

DISCUSSION

This 55-years old lady had attained menopause 10 years back and had undergone hysterectomy for uterine fibroids 5 years back when she was diagnosed to have Diabetes mellitus, but she had not since taken the anti-diabetic treatment regularly. She denied any sexual exposure of self/husband to high risk practices, including orogenital sex. She had diffused genital ulcerations which were interspersed with few vesicles, a copious malodourous Mucoid discharge, not vaginal; a discrete 1-2 cm sized tender inguinal lymphadenopathy and mild lower abdominal tenderness. Her advancing age and her uncontrolled hyperglycaemic state may probably have led to an unusually severe and diffuse spread of the Herpes genitalis infection, its co-infection with *C. amycolatum,* mild PID and Candidal vaginitis. In this report, *C.amycolatum* seemed to have caused a secondary infection. Most of the studies had reported such infections as primary infections, particularly in immunocompromised hosts.

Corynebacterium amycolatum is non-lipophilic, fermentative Corynebacterium, which lacks mycolic acid, whose isolation was established only in 1988 by Collins *et al.,* [4] from the skin swabs from healthy people. The Coryneform bacteria have to be considered as clinically significant organisms whenever they are isolated in pure culture, or from a sterile site, or repeatedly [5]. *C. amycolatum* is the most commonly isolated species amongst all the diphtheroids; it is frequently isolated from pus, urine and catheter tips. At present, it is increasingly emerging as a pathogen in immunocompromised hosts [6]. In our case, the *Candida species* was restricted to the vaginal mucosa only. It was neither found in the pus from the external genitalia site nor was it seen in the Gram staining of the pus. Though the perineal area is not a sterile site, the *C. amycolatum* was found from pus repeatedly in a pure form and it was the only pyogenic organism.

To the best of our knowledge, our present report on the isolation of *C. amycolatum* as a secondary pathogen with Herpes genitalis in a longstanding uncontrolled diabetic, is the first from India. The source of the *C. amycolatum* infection in this case seemed to be non-venereal and to be most probably endogenous/community acquired; the most common sources of this organism are soil and water. The community acquired infections include exudative pharyngitis, native valve endocarditis, genitourinary tract infections, acute and chronic prostatitis and periodontal infections [7]. *C. amycolatum* is known to cause nosocomial infections which include intravascular catheter associated septicaemia, prosthetic valve endocarditis, device related infections and postoperative surgical site infections [8]. Diabetes mellitus, peripheral vascular disease can be considered as the risk factor for the infection which was caused by *C. amycolatum* [9].

CONCLUSION

We presented here a case of the co-infection of Herpes genitalis with *C. amycolatum* in a post menopausal female, diabetes mellitus patient. To conclude, *C. amycolatum* could be considered as an associated pathogen with a viral infection. An antiviral therapy was insufficient and this, in combination with an antibacterial therapy, resulted in a successful outcome in our case. To the best our knowledge, this is an extremely rare report from India.

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