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Original Article

Etiological spectrum of cervicovaginal discharge among professional sex workers versus nonprofessionals



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ABSTRACT

Context: Vaginal discharge is a major problem for women, causing discomfort and anxiety, thus affecting the quality of their life. Sexually transmitted infections (STIs) are occurring in higher percentage in commercial sex workers, since they tend to have high rates of partner change and unprotected sex.

Aims: This study aims to find out the prevalence of various etiological agents of cervicovaginal discharge, identify coinfections, and determine antimicrobial susceptibility pattern of the isolates.

Settings and design: Cross sectional comparative study.

Methods and materials: High risk and low risk females, 50 each were included and high vaginal, cervical swabs, and blood samples were collected from each patient. Microscopy, culture, serology, and antimicrobial susceptibility tests were done.

Statistical analysis: Statistical analysis was done using Chi-square test (IBM-SPSS statistics version 22) and simple percentage calculation.

Results: Among the various etiologies of cervicovaginal discharge, candidiasis was the commonest followed by chlamydial cervicitis, bacterial vaginosis, aerobic vaginosis, trichomoniasis, and gonococcal cervicitis in order. Coinfections were found in more than a third of total positives.

Conclusions: Treatment failure in cervicovaginal discharge is mainly due to coinfections and resistant isolates, which emphasizes the importance of etiological diagnosis and susceptibility testing.

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1. Introduction

Sexually transmitted infection (STI) refers to a variety of clinical syndromes caused by organisms that can be acquired

or transmitted sexually.¹ Women are more susceptible for acquiring STI because of anatomical, physiological, immunological, and hormonal factors. Also, social stigma and management difficulties further complicate the magnitude of the problem in women.² The prevalence of vaginal

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discharge in India was found to be 30% in general population³ and 50% among commercial sex workers.⁴ In contrast to the previous assumption, nonulcerative STIs are also known to increase HIV acquisition.⁵ Therefore, this study was done to analyze the various aspects of cervicovaginal discharge such as prevalence, coinfections, and antimicrobial susceptibility pattern.

2. Subjects and methods

A cross-sectional comparative study was conducted in the Department of Microbiology, in association with Department of Sexually Transmitted Diseases, during the period of May 2011 to April 2012 involving 100 female outpatients attending the STI clinic. High risk and low risk women belonging to reproductive age group (15–49 years) with complaints of vaginal discharge were enrolled into the study. Commercial sex workers were considered as high risk group and women with single partner were taken as low risk group. Women in extremes of age, menstruation, genital prolapse, and with history of treatment for discharge syndrome within 2 weeks prior to the visit were excluded from the study. Ethical and research clearance from Institutional Ethical Committee and informed consent from the participants were obtained before the commencement of study. Statistical analysis was done using Chi-square test by IBM-SPSS statistics version 22, and simple percentage calculation.

2.1. Sample collection

The procedure was explained to the patient and after wearing sterile gloves, speculum examination was done and four high vaginal swabs, two cervical swabs, and 5 ml of blood were collected from each patient. Discharge from speculum was subjected to saline mount, KOH mount, and Amsel's criteria. *High vaginal swab one*: Gram's staining for Nugent score,⁶ Giemsa stain for *Trichomonas vaginalis*. *High vaginal swab two*: Inoculated into blood agar and human bilayer tween blood agar for culture of aerobes and anaerobes. *High vaginal swab three*: Inoculated into modified CPLM (Cysteine, Peptone, Liver infusion, Maltose) medium for isolation of *T. vaginalis*. *High vaginal swab four*: Inoculated into Sabouraud's dextrose agar for culture of *Candida* species. *Cervical swab one*: Gram's stain to look for pus cells with or without organisms especially intracellular diplococci. *Cervical swab two*: Inoculated into Modified Thayer Martin (MTM) medium for isolation of *Neisseria gonorrhoeae*.

*Gardnerella vaginalis*⁷ was identified by observing for tiny translucent beta hemolytic colonies, which were catalase and oxidase negative and gram stain showing gram negative coccobacilli. Identification discs such as metronidazole 50 µg, bacitracin 5 IU and SPS (Sodium Polyanethol Sulphonate) 100 µg were used. Obligate anaerobes were identified based on colony morphology, beta hemolysis, pigment production, swarming, aero tolerance test, and Gram stain findings and differential discs like vancomycin 5 µg, colistin 10 µg, and kanamycin 1 mg.⁸ *Candida* species were identified based on colony morphology, Gram's stain, germ tube test, cornmeal agar, CHROM agar, and carbohydrate assimilation test (Fig. 1).

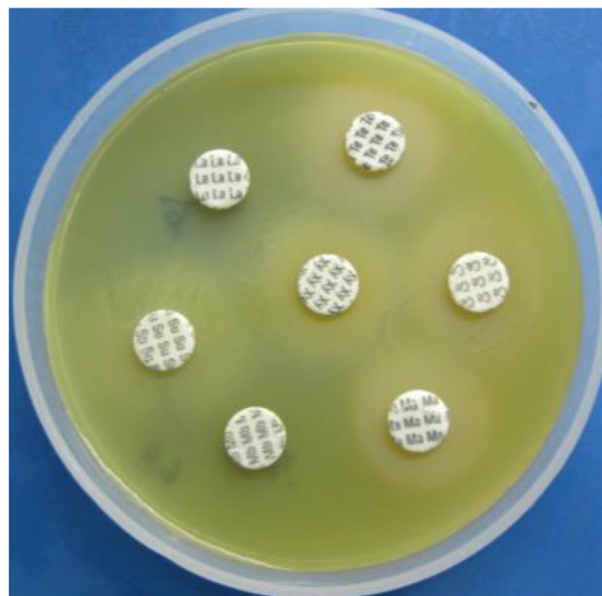


Fig. 1 – Carbohydrate assimilation test.

N. gonorrhoeae were identified based on colony morphology, Gram's stain, oxidase test, and rapid carbohydrate utilization test (RCUT) (Fig. 2). Isolates were also sent to Apex Regional STD Teaching, Training and Research Centre, New Delhi and confirmed. Aerobic organisms were identified based on the



Fig. 2 – Rapid carbohydrate utilisation test.

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