

Microbial Profile of High Vaginal Swab From Symptomatic Women of Reproductive Age Group: Data from Tertiary Care Hospital

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Abstract: Background: Vaginal infection is common in women in developing countries and it can be due to bacterial vaginosis, candidiasis and trichomoniasis along with STIs. Aim: Microbiological analysis was done to find out the common aerobic nonfastidious pathogens which caused various lower genital tract symptoms in patients of the reproductive age group, who attended the Obstetrics and Gynaecology Department at the Institute of Medical Sciences, Banaras Hindu University, Varanasi during the period June 2014 to 2015. Materials and Methods: All the 100 HVS samples were subjected to aerobic culture on Blood agar and MacConkey agar for bacterial analysis. Results: The overall positivity for pathogenic aerobic microbes was 27%, while 16 grew vaginal flora and majority of samples (42) were sterile/did not grow any microorganism. Two HVS samples grew candida while 15 had Micrococci/non-pathogenic bacteria on culture. Conclusion: Pathogenic bacteria were found more frequently than Candida. Hence, the practice of empirical antifungal therapy without taking high vaginal swab needs to be revised. The use of appropriate antibiotics along with antifungal drugs may be beneficial.

Keywords: HVS (high vaginal swab), vaginal infection, candidiasis, aerobic culture, genital tract pathogens

1. Introduction

Vaginal infection is a common disease of women. Causes of vaginal discharge include physiological, infective (e.g. bacterial vaginosis, candidiasis, trichomoniasis) and non-infective (foreign bodies, cervical ectopy and genital tract malignancy) [1]. Although after 40 years, there is a fall in estrogen production. An estrogen deficient state in vagina and the immunocompromised status due to diabetes or other associated factors can lead to growth of abnormal flora which may in turn lead to infections. Bacterial vaginal infections are often least understood and empirical antifungal therapy for any vaginal infection without high vaginal swab culture is still in practice. Normal vaginal pH in women of reproductive age is acidic, pH is normally ≤ 4.5 . In bacterial vaginosis and infection with *Trichomonas vaginalis*, vaginal pH is elevated >4.5 . In vaginal candidiasis, vaginal pH is ≤ 4.5 . The aim of the study is to analyse the prevalence of bacterial vaginal infections in patients attending Obstetrics and Gynaecology department with various complaints.

Women of reproductive age with vaginal discharge should have a high vaginal swab (HVS) cultured if [2, 3, 4, 5].

- Postnatal or post miscarriage
- Vaginitis without discharge
- Pre or post gynaecological surgery
- Pre or post termination of pregnancy
- Symptoms not characteristic of Bacterial vaginosis
- Within 3 weeks of intrauterine contraceptive insertion

2. Methods

Hundred (100) HVS specimens from women in the age group 20-40 years were taken from the patients attending the Department of Obstetrics and Gynaecology, Institute of

Medical Sciences, Banaras Hindu University, Varanasi with various gynaecological complaints of burning micturition, pain in abdomen, low backache and dyspareunia. High vaginal swab specimens were cultured aerobically on blood agar and MacConkey agar and incubated at 37°C. Biochemical tests were performed and the microorganisms identified and analysed.

3. Results

The microorganisms isolated were *Escherichia coli* (17), *Micrococci* (15), *Enterococcus faecalis* (7) and *Candida spp* (2) and *Staphylococcus aureus* (1). The major pathogens were *Escherichia coli* (63%), *Enterococcus faecalis* (26%), and *Candida spp* (7.3%) and *Staphylococcus aureus* (3.7%), forty two samples were sterile, vaginal flora grew in 16 of the HVS samples received.

Table 1: Result of HVS culture

S.No	Aerobic Organism isolated	Number of patients	pathogenicity
1.	<i>Escherichia coli</i>	17	Pathogenic
2.	Micrococci	15	Non-pathogenic
3.	<i>Enterococcus faecalis</i>	7	Pathogenic
4.	<i>Candida spp</i>	2	Pathogenic
5	<i>Staphylococcus aureus</i>	1	Pathogenic
6.	Vaginal flora	16	--
7.	None /sterile	42	--

Table 2: Microbial pathogens grown

S.no	Pathogenic organism	Percentage (%)
1	<i>Escherichia coli</i>	63
2	<i>Enterococcus faecalis</i>	26
3	<i>Candida spp</i>	7.3
4	<i>Staphylococcus aureus</i>	3.7

Table 3: Microbial analysis of HVS samples cultured:

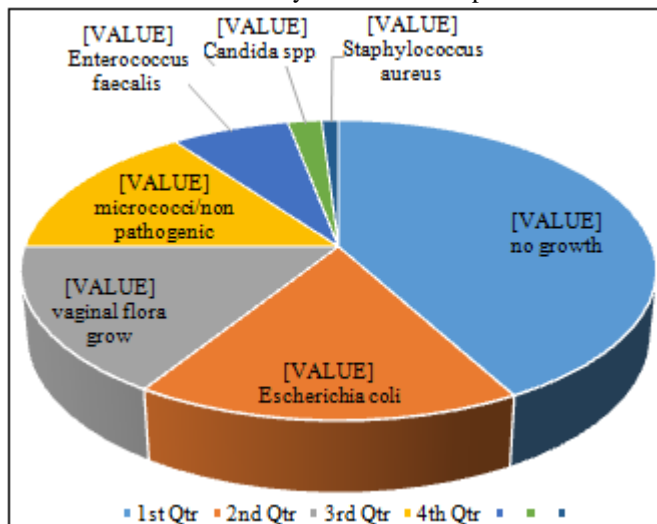
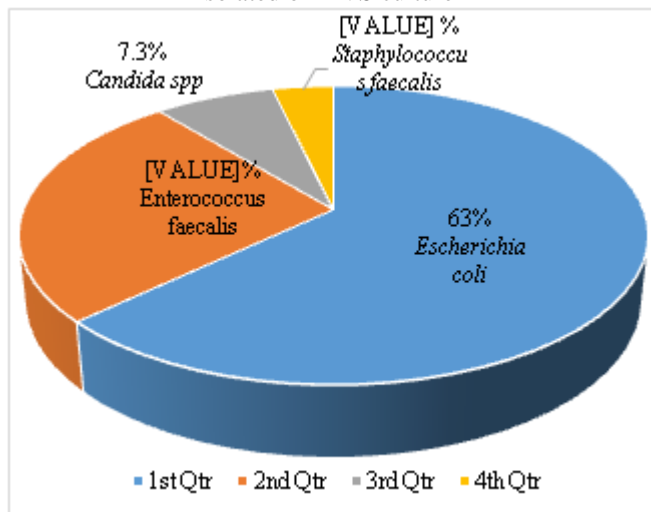


Table 4: Percentage distribution of Aerobic pathogens isolated on HVS culture



4. Conclusion

Vaginal infections are common gynaecological problem in our country. Known predisposing factors for symptomatic vaginal discharge are poor hygiene, low socioeconomic status, early sexual activity and multiple partners. The HVS remains the mainstay of management. Although Laboratories have a standard operating procedure (SOP) but for HVS samples there are no universally accepted guidelines on how to process HVS samples, and this appears to be reflected by variability in processing and reporting between laboratories. In addition, many times it is not clear whether gynaecologist are receiving the information they want from HVS reports. Pathogenic bacteria were found more frequently than Candida. Hence, the practice of empirical antifungal therapy without taking high vaginal swab needs to be revised. The use of appropriate antibiotics along with antifungal drugs may be beneficial.

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