ORIGINAL ARTICLE

Frequency of Vaginitis and Isolated Aerobic Bacteria in Reproductive Age Group

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ABSTRACT

Aim: To find out frequency of vaginitis and isolated aerobic bacteria in reproductive age group
Methods: This cross sectional study was conducted at Department of Microbiology QMC, Bahawalpur from January 2013 to December 2013. High vaginal swabs were collected from 125 women with clinical suspicion of vaginitis. Gram' staining was done and then inoculated on blood agar, chocolate agar and MacConkey agar and incubated aerobically at 37^0C for 24 hours. Organisms were then identified.
Results: The frequency of Aerobic vaginitis in this study was 51(40.8%) and the most common age group affected was between 26-30 years i.e., 57.5%. Out of the 51 positive cases, 42 samples yielded monobacterial growth and 9 cases polybacterial growth. The most common organism isolated was *Enterococcus faecalis* (30%), followed by *E.Coli* (23.3%), *Staphylococcus aureus* (13.3%) and *Coagulase negative staphylococci* (13.3%).
Conclusion: In this study, highest frequency of vaginal infections was noted among young sexually active females at the age group of 26-30 years. Enterococcus faecalis was the most common organism isolated from AV cases.
Keywords: Aerobic vaginitis, *Lactobacillus*, *Enterococcus faecalis, E. Coli*

INTRODUCTION

The term vaginitis is the diagnosis given to women who present complaining of abnormal vaginal discharge with vulval burning, irritation or itching[1]. Inflammation of the vaginal mucosa, called vaginitis, is one of the most frequent complaints in women attending gynecological clinics accounting for 10 million office visits each year[2]. Aerobic vaginitis (AV) is defined as a disruption of the lactobacillary flora, accompanied by signs of inflammation and the presence of a rather scarce, predominantly aerobic microflora, composed of enteric commensals or pathogens[4]**.** Aerobic vaginitis corresponds to a type of disturbed microflora, in which the lactobacilli are replaced by aerobic facultative pathogens like E.coli, Staphylococcus aureus, Group B streptococci (GBS), Klebsiella pneumonia, and Enterococcus species. Disruptions of the vaginal ecosystem during aerobic vaginitis cause an increase in pH to >6, a decrease in lactate concentration and an increase in leucocytes and pro-inflammatory cytokines concentration in the vaginal discharge. The common presenting features are yellowish vaginal discharge and dyspareunia with red inflammation of vagina. The increased local production of IL-1, IL-6 and IL-8 associated with aerobic vaginitis is responsible for the increased risk of preterm delivery, premature rupture of membranes (PROM) and chorioamnionitis during pregnancy[3]. The prevention of preterm birth remains a major challenge in obstetrics. The earlier in gestation that preterm labour starts, the higher the likelihood that underlying chorioamnionitis is present[5]. Ascending infection during gestation may also result in maternal complications such as sepsis, septic arthritis and maternal respiratory distress[6].

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METHODOLOGY

This cross sectional study was conducted at Department of Microbiology QMC, Bahawalpur from January 2013 to December 2013. An approval was taken from institutional review committee and an informed verbal consent was taken from every patient. Total 125 patients were recruited from Department of Obstetrics and Gynecology BVH, Bahawalpur. Patients with symptomatic vaginal discharge with age range from 15 – 45 years, pregnant females, irrespective of their gestational age were included in this study. Patients with diagnosis of bacterial vaginosis, candidiasis and trichomoniasis, patients treated with oral or parenteral or with local application of antibiotics for at least one month before attendance to the hospital and patients with Neisseria gonorrhoea or Chlamydia trachomatis cervicitis were excluded from the analysis.

Three high vaginal swabs (HVS) were collected for each patient. Swabs were collected by inserting it into the upper part of the vagina and rotated there for 30 seconds before removal. These swabs were sent to microbiology lab in a transport media. The first swab was used for Gram's staining, second swab for visual detection of any increased number of leukocytes and the presence or absence of lactobacilli (long rods) under microscope. AV score was determined using the criteria of Donders et al[3]. The third swab was used for inoculating media for aerobic bacterial culture (Blood agar, MacConkey agar, & Chocolate agar).

RESULTS

The detail of results is given in tables 1 and 2. In this study, 41 cases (80.4%) had mild AV, 8 cases (15.7%) with moderate and only 2 cases (3.9%) with severe AV were detected (Fig. 1)

Table 1: Age distribution of patients with Aerobic vaginitis

Age (yrs)	Total cases(n=125)	+ve cases (n=51)
15-20	8	3 (37.5%)
21-25	24	10 (41.7%)
26-30	40	23 (57.5%)
31-35	23	12 (52.2%)
36-40	11	2 (18.2%)
41-45	19	1 (5.3%)

Fig 1: Severity of aerobic vaginitis

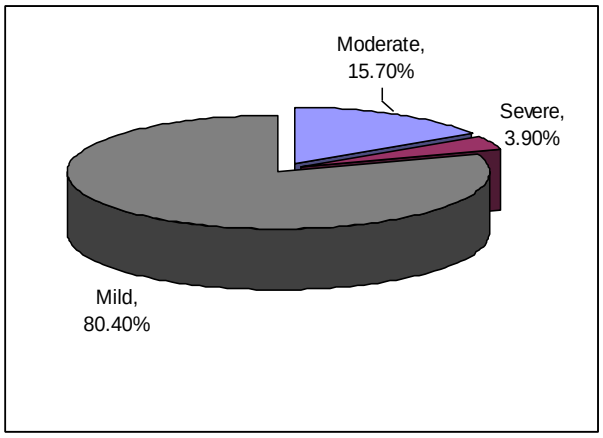

Table 2: Distribution of organisms isolated

Organisms	No. of isolates	%age
Enterococcus faecalis	18	30.0
E.Coli	14	23.3
Staph. Aureus	8	13.3
CONS	8	13.3
Klebsiella pneumonia	5	8.3
Pseudomonas aeruginosa	3	5.0
Acinetobacterbaumanii	2	3.4
Enterobacter cloaca	2	3.4
Total	60	100

DISCUSSION

The frequency of Aerobic vaginitis (AV) in this study was 40.8% which correlates with the study of Mumtaz et al[7] who reported AV as 38.01%. Ayengar V et al[8] also reported a culture positivity of 57%. Higher rate of aerobic vaginitis was observed by Ling C et al[9] i.e. 80% and by Razzak et al[10] (95.45%). Donders et al[3] reported a lower rate of AV i.e.7.9%. In this study, the highest frequency of vaginal infections was noted among young sexually active females, at the age group of 26-30 years (57.5%), followed by 31-35 years (52.2%) and 21-25 years (41.7%).This was in concordance with studies done by Mumtaz et al[7] and Khan et al[11].The frequency of culture positivity seems to decline progressively with increasing age.

Maximum number of cases in this study was diagnosed with mild AV (80.4%). Moderate AV was reported in 15.7% of cases and severe AV in only 3.9% of cases which is in accordance with studies done by Zodzika J et al[12]. In this study, Enterococcus faecalis (30%) was the most prevalent organism isolated from AV cases followed by Escherichia coli (23.3%), Staphylococcus aureus (13.3%) and Coagulase negative staphylococci (13.3%). In a study by Khan et al[11], Enterococcus faecalis (31%) was the most frequently isolated pathogen in Aerobic vaginitis. Tariq et al[13] also reported Enterococcus spp. (14.7%) and E.coli (10.2%) as the commonest bacterial vaginal pathogens. Tempera G et al[14] studied a sample of 30 women with a clinical and microbiological diagnosis of aerobic vaginitis. E. coli was the most frequently isolated pathogen (n=29), followed by E. faecalis (n=15).

CONCLUSION

In this study, highest frequency of vaginal infection was noted among young sexually active females at the age group of 26-30 years. The frequency of culture positivity seems to decline progressively with increasing age. Maximum number of cases were diagnosed with mild AV and Enterococcus faecalis was the most common organism isolated from AV cases.

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