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PREVALENCE OF VAGINAL INFECTION IN ASYMPTOMATIC PREGNANT WOMEN -A CROSS-SECTIONAL OBSERVATIONAL ANALYTICAL STUDY.

Obstetrics & Gynaecology

Dr Mamta Singh* Assistant professor, Obs and gynae department, Government medical college, kannauj, Director of Sparsh Hospital, Nasrapur, Tirwa road, Kannauj. *Corresponding Author

Dr Sapna Singh Professor &HOD, Obs & gynae department, Government Medical, College, Kannauj.

ABSTRACT

Introduction: Genital infections during perinatal period are a relatively common cause of morbidity, occurring in 1/3 of pregnant women [4]. vaginal environment is different in pregnancy. vaginal microbiota of pregnant women is different from non-pregnant women. Bacteria and viruses which are infectious most often have no symptoms. **Objective:** To study the vaginal flora of asymptomatic pregnant patient, to find out the prevalence of aerobic vaginitis in asymptomatic pregnant patient. **Study Design:** This is a cross-sectional study done in Sparsh Hospital from March 2023 to December 2023. **Material Method:** This is a cross-sectional study done in Sparsh Hospital from March 2023 to December 2023. 100 patients in any trimester with singleton pregnancy included in our study. All singleton pregnant women without any complain was selected for study after explaining them about the study and written consent taken from each patient. Age of the patients between 21 to 35 years. **Result:** 55% patient had abnormal vaginal culture report. 45 % patients had sterile report. **Conclusion:** Vaginal infections during pregnancy are very common, it can be symptomatic or asymptomatic. prevalence among asymptomatic patients is also very high as proved in result of this study.

KEYWORDS

Vaginal infection, microbiomes, genital infection, vaginal and culture sensitivity.

INTRODUCTION

Genital infections during perinatal period are a relatively common cause of morbidity, occurring in 1/3 of pregnant women [4] vaginal environment is different in pregnancy. vaginal microbiota of pregnant women is different from non-pregnant women. Bacteria and viruses which are infectious most often have no symptoms. In normal pregnancy, vaginal microbiota is thought to provide protection against infection. lactobacillus species is the predominant specie of pregnancy. Composition of vaginal microbiota can change during pregnancy. If the microbiota population become more diverse, indicating that the normal lactobacillus dominated population has changed to a bacterial vaginosis population, risk of adverse pregnancy outcome increases [1]. Vaginal discharge in pregnancy is not an indicator of bacterial vaginosis or abnormal microbiota [3]. vaginal PH during pregnancy is increased due to hormonal changes, and from increase glycogen stores, these all lead to High infection rate in these group of patients.

Vaginal flora of pregnancy plays an important role in spontaneous and preterm labour. newborn get vaginal flora through vaginal delivery, breast milk and the maternal gut.after delivery lactobacillus rich microbiome drops significantly and become more diverse during the postpartum period [2].

Aerobic vaginitis is a form of vaginitis first described by Donders et al. 2002.[6,7]it is characterised by presence of predominantly aerobic microflora, composed of enteric commensals or pathogens .[8]it is the aerobic counter part of bacterial vaginosis. desquamative inflammatory vaginitis probably correspond to the more severe form of aerobic vaginitis .[9]bacterial vaginosis is caused by anaerobic bacteria -these bacteria grow without presence of oxygen. Aerobic vaginitis is caused by aerobic bacteria, these bacteria require oxygen for growth most common bacteria that lead to aerobicvaginitis are E. coli, Staphylococcus aureus, group B streptococcus and enterococcus faecalis.

Alteration in vaginal flora during pregnancy can cause intrauterine infections this is caused by bacteria that causes inflammation. Women may remain symptom free or experience very less symptoms, this can lead to adverse pregnancy outcomes- intrauterine growth retardation, preterm labour, premature rupture of membranes and postpartum endometriosis. Chorioamnionitis is due to presence of urea plasma pavum and mycoplasma species. they produce proinflammatory cytokines and chemokines.IL-8 causes cervical ripening and preterm birth. Most of these women are asymptomatic.

When infection goes undiagnosed till late pregnancy, then it can lead to maternal and infant morbidity. Inappropriate use of antibiotic has resulted in the occurrence of attenuated clinical forms of genital infections which chromicizedinfections with germs with multi resistance to usual antibiotics.[5] knowledge of changes in vaginal flora during pregnancy is essential and study of vaginal microbiome during pregnancy is essential for every pregnant woman.

Objective

To study the vaginal flora of asymptomatic pregnant patient, tofind out the prevalence of aerobic vaginitis in asymptomatic antenatal patient.

MATERIAL METHOD

Study Design.

This is a cross-sectional study done in Sparsh Hospital from March 2023 to December 2023.

Ethical committee clearance was taken.

All singleton pregnant women without any complain was selected for study after explaining them about the study and written consent taken from each patient. Age of the patients between 21 to 35 years.

Exclusion Criteria

History of leaking, absent membranes, history of any discharge, itching in vagina any medical complication like anaemia, hypertension and diabetes. any antibiotic intake within 15 days.

Data Collection

Detailed history taken regarding past obstetric history, any abortions, still births, any drug abuse, any douching, socioeconomic status, education, smoking, no of sexual partners, contraceptives. spouse having HIV, HBsAg or HCV also excluded from study.

Detailed general examination and systemic examination done to find out any exclusion criteria Obstetrical examination is also done.

Sample Collection.

Patient lied down in lithotomy position in a well-ventilated room with good light. water lubricated sterile speculum is inserted in vagina, inspection is done for any abnormality.high vaginal swab is taken from post fornix with sterile cotton mounted stick with precaution not to touch cervix mucous. Swab stick is packed in sterile plastic tube and send for culture and sensitivity.

Statistical Analysis

Descriptive statics. qualitative variables have been presented as counts and percentages. for easy understanding few frequencies distribution have presented as bar diagrams and pie charts.

RESULT

100 patients in any trimester with singleton pregnancy included in our study. all patients are from middlesocioeconomic status. study group had no co morbidity. 55% patient had abnormal vaginal culture report. 45 % patients had sterile report.

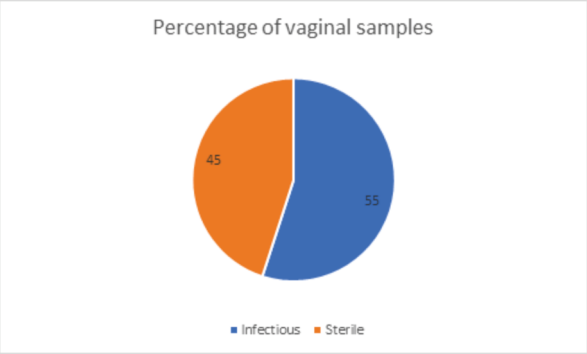

Fig. 1 Showing Percentage Of Infectious And Sterile Samples.

More common organism detected in culture reports are E. coli, staphylococcus aureus, candida tropicalis,KlebsiellaPneumonae ,Burkholderia Vitnamensia, Actinobacterhemolyticus , and Actinobacter baumannii. Most common organism found was E. coli.

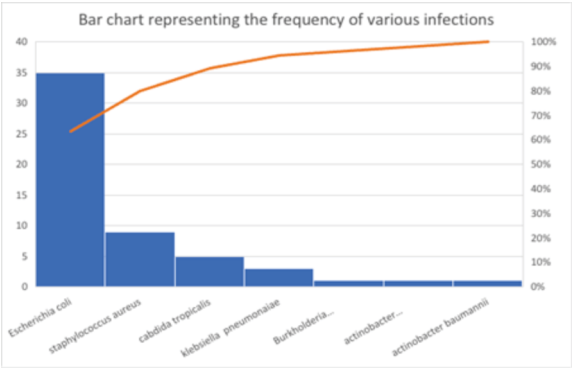

Fig. 2 Bar chart representing the frequency of various organism.

E. coli present in 63.6%, staphylococcus aureus in 16.3%, candida tropicalis in 9.09%. Klebsiella pneumonae in5.4% Burkholderia vitanamensia in 1.81%, actinobacterhemolyticus 1.81% and actinobacter baumannii in 1.81% patients.

Table 1. Growth Pattern Distribution Of Organism In Culture.

Growth pattern of infection	Frequency	Percentage (%)
Heavy	1	14.29
Moderate to heavy	2	28.57
Moderate	2	28.57
Scanty	2	28.57
Grand Total	7	100

Most patients show moderate to heavy or moderate growth of organism in culture. E coli shows heavy growth in 75 % of samples (75% of 63.65).

Table 2. Showing Drug Sensitivity of E Coli Infections

Name of drug	no of sensitive patients	percentage sensitive
GENTAMYCIN	16	45.71429
AMIKACIN	17	48.57143
IMEPENEM	11	31.42857
MEROPENEM	10	28.57143
FOSPHOMYCIN	1	2.857143
PIPERACILLIN /TAZOBACTUM	14	40
TIGECTICYCLINE	20	57.14286
CEFPERAZONE SALBACTUM	19	54.28571
CEFTRIAXONE	3	8.571429
ENTEROPENM	6	17.14286
NORFLOXACIN	1	2.857143
OFLOXACIN	1	2.857143
TRIMETHOPRIM+SULBACTUM	2	5.714286
CEPIME	4	11.42857
CEFTAZIDINE	1	2.857143

Most of the patients infected by E. coli sensitive to Tigecticyline and Cefaperazone sulbactam injectable. Followed by amikacin, gentamicin piperacillin tazobactam, Imipenem and meropenem. This result showed that these drugs are not commonly prescribed to pregnant patients even if they complain of vaginal discharge or itching.

In staphylococcus infection 100% patients are sensitive to tigecycline, daptomycin and nitrofurantoin followed by clindamycin, erythromycin, lizomed vancomycin teicoplanin, tetracycline and Trimethoprim/sulphamethoxazole.

In candida tropicalis infection, growth is generally scanty, and all patients are sensitive to amphotericin, caspofungin, fluconazole, flucytosine, micafungin and voriconazole.

Klebsiella pneumonae patients are sensitive to gentamicin, mikacin pipercillin/ tazobactum ,ciprofloxacin , cefepime ,cefriazonem, cefaperazone sulbactam.

Burkholderia viltnamiensia organism is sensitive to levofloxacin, meropenem trimethoprime/sulphamehoxazole and inocyline. This organism shows scanty growth.

Actinbactor baumanni organism shows intermediate sensitivity to levofloxacin, cefepime, cefaperazone/sulbactum . no drug is highly sensitive against this organism. Shows moderate growth in culture.

Actinobacter haemolyticus shows heavy growth and sensitive against ceftazidime, imipenem, meropenem, gentamicin, piperacillin /tazobactam, trimethathoxazole , cefepime, minocycline, cefaperazone /sulbactam.

DISCUSSION

Result of our study showed that prevalence of abnormal microbiome in asymptomatic pregnant women is 55%. This figure would have been higher in symptomatic women .as pregnancy advances composition of flora changed ,vaginal microbiome become more benign, until term.[10] with advance age of pregnancy ,increased level of oestrogen has a positive effect on lactobacilli activity and proliferation by increasing glycogen availability.[11] increased level of lactobacilli thought to secrete higher amount of antibacterial bacteriocins , production of lactic acid is increased , which helps to maintain low PH value , this low PH inhibit the growth of abnormal pathogens.[12] our study is not longitudinal study, limiting information of real change in vaginal microorganisms over gestation.

Decreased lactobacilli characterizing bacterial vaginosis are associated with preterm delivery.[13], particularly among high-risk women, the impact of intermediate flora or aerobic vaginitis in pregnancy are not fully understood, with some studies suggesting that it may cause poor pregnancy outcome, comparable to bacterial vaginosis.[14] our study showed that asymptomatic patient had abnormal vaginal microbiome could led to poor outcome of pregnancy. Most of the bacteria detected in our study results are of aerobic type.

Transition state between normal vaginal flora and bacterial vaginosis is known as intermediate flora.[11]. the term aerobic vaginitis was coined by Donders et al as opposed to bacterial vaginosis .[15] this is condition in which lacto bacilli is replaced by aerobic facultative organism such as E. coli, Klebsiella, enterococci, staphylococcus and group B streptococci.

This is also confirmed in result of our study. microorganism cultured in samples matched with these pathogens.

Recent studies suggested that aerobic abnormal flora in early pregnancy confer a significant risk factor for preterm labour and is associated with inflammation of placenta ,includingchorioamnionitis and funisitis .[16] in study of Kyung A Sung et al ,result showed that aerobic bacteria detected in the second trimester was associated with a higher rate of delivery before 28 weeks of gestation .[17] according to result of this Study and abnormal flora finding of our study ,suggest that screening of vaginal flora by culture sensitivity should be done in each women regardless of their complain during pregnancy to find out the type of microorganism in their vagina. on the basis of that they could take treatment within time and poor outcome-of pregnancy could be avoided.

CONCLUSION

Vaginal infections during pregnancy is very common, it can be symptomatic or asymptomatic .prevalence among asymptomatic patients is also very high as proved in result of this study. As they goes undiagnosed during antenatal period ,they present in future as preterm labour and low birth weight babies and risk of maternal and foetal morbidity. Inappropriate use of antibiotic also lead to antibiotic resistance. In low socioeconomic countries, where resources are less, testing of vaginal infection by high vaginal swab culture sensitivity will diagnose infection during ante natal period. Patient can take treatment according to report, so burden of preterm labour, neonatal complications due to prematurity, postpartum maternal infections like endometritis and puerperal sepsis can be avoided only by doing high vaginal swab culture and sensitivity of all pregnant patients and provide treatment accordingly with in time.

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