



## Undiagnosed Asymptomatic Bacteriuria and Its Prevalence among Pregnant Women Attending Antenatal OPD: A Cross Sectional Study at State Hospital

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### Abstract

**Introduction:** In pregnant woman the presence of asymptomatic bacteriuria is common without any symptoms and has a prevalence of 2-10%. When the urine of a asymptomatic pregnant patient is collected and cultured it showed a growth of organism  $\geq 10^5$  in asymptomatic bacteriuria. This condition usually progress to other urinary complications and adverse fetal outcomes. Hence it is advised that all the pregnant patients who are asymptomatic should undergo urine culture for screening of asymptomatic bacteriuria.

**Methodology:** This study was a prospective cross sectional study. All the asymptomatic antenatal patients attending the opd were given sterile urine container and explained the method to collect a midstream urine sample by clean catch method and urine analysis done by microscopy and tested by culture method.

**Result:** in this study a total of 940 patients without any symptom of urinary tract infection were included. After urine culture out of these patients, 156 patients were found to have asymptomatic bacteriuria. After the urine culture the most common pathogen isolated was *E.coli* and second most common isolated pathogen was *Klebsiella*. Urine culture was followed by drug sensitivity and it showed maximum sensitivity to nitrofurantoin (100%).

**Conclusion:** In pregnant women without any symptoms urine culture showed asymptomatic bacteriuria with a prevalence of 16.5%. When left untreated Urinary tract infection may lead to serious complications in mother as well as in fetus. Most common pathogen found was *E.coli* and highest drug sensitivity was found for nitrofurantoin. Hence urine culture test should be done in all asymptomatic pregnant patients despite period of gestation.

### Introduction

The existence of pathogen in the urine sample of a patient without any symptoms of urinary tract infection is called as asymptomatic bacteriuria. During pregnancy there is decrease in immunity

which lead to development of pathogen in urine both commensal and non commensal organisms. Other reason is increased plasma volume which in turn decreases the urine concentration and decrease in the renal threshold lead to glycosuria

which also favours development of pathogens. Worldwide incidence of asymptomatic bacteriuria lies between 2-10%.

In this condition when urine culture is done it showed significant growth of bacteria that is  $\geq 10^5$  bacteria per ml. When left untreated asymptomatic bacteriuria may progress to symptomatic bacteriuria leading to serious complications of such as pyelonephritis and obstetric complications such as premature birth, pre-eclampsia, anaemia, premature rupture of the membrane, and post-partum endometritis, complications in neonates such as low birth weight, increased neonatal mortality may also occur.

Hence it has been suggested that routine screening of antenatal patients attending the opd should be done for asymptomatic bacteriuria and it should be treated before its progression to adverse sequelae. However routine screening of antenatal patients in our country or in other developing countries is not done because of cost factor and long duration of results such patients may be lost to follow up hence on their visit urine routine microscopy is done which may indicate presence of glucose and protein suggesting further testing with urine culture and sensitivity in such patients.

Adverse outcomes may be seen if asymptomatic bacteriuria is left untreated and despite these complications adequate screening and treatment of this condition is not done accurately.

This study will provide the knowledge to focus on screening, assessing the risk factors, testing for antimicrobial susceptibility and need for antimicrobial treatment.

### Material and Methods

The design setting of our study was prospective cross sectional study. In this study about 940 antenatal patients who attended the opd from 1<sup>st</sup> august 2019 to 1<sup>st</sup> February 2019 were included. Inclusion criteria of our study was asymptomatic pregnant patients without any sign and symptom of urinary tract infection, aged between 18-45 years, with singleton pregnancy and with history of preterm labour in the previous pregnancy.

Exclusion criteria was previous history of UTI, treated case of UTI, known case of urinary tract malformation, known case of renal disease or SLE or chronic disorder.

Our study included all the pregnant patients who came in to the opd for routine antenatal checkup were included in this study after taking into consideration of the inclusion criteria and those unfit for study were excluded at the time of enrollment. All the enrolled patients were explained thoroughly about the study and informed consent was taken. All patients were advised to collect 20cc of midstream clean catch urine sample in a sterile container, collected samples were then transported to testing laboratory. Data hence collected was tabulated and analysed.

### Results

A total of 940 pregnant patients without symptoms were enrolled in this study. Out of these 940 enrolled pregnant patients, only 156 were found to be positive on urine culture for significant bacteriuria, showing a prevalence of 16.5%. About 20.2% patients were found to be in the age group of 26-30 years. Maximum patients were in first trimester with a prevalence of 18.6% culture positive patients. Most common organism found in urine culture was E.coli with a prevalence of 55.7% and second common pathogen was klebsiella with a prevalence of 27.5%.

**Table 1:** Prevalence with age

Age group	Number of patients	Culture positive	Percentage
18-25	256	44	17.1%
26-30	336	68	20.2%
31-35	264	41	15.5%
36-40	46	2	4.3%
>40	38	1	2.6%

**Table 2:** Prevalence in each trimester of pregnancy

Trimester	Number of patients	Culture positive	Percentage
First	419	78	18.6%
Second	306	55	17.9%
Third	215	23	10.6%

**Table 3:** Prevalence of pathogen in culture

Pathogen	Number	Percentage
E.Coli	87	55.7%
Klebsiella	43	27.5%
Staphylococcus aureus	12	7.6%
Proteus	9	5.7%
Pseudomonas	5	3.2%

### Discussion

To ensure the proper health of antenatal patients and newborn babies adequate health care services should be provided. It has been seen that urine strip test is done for urine analysis in routine and urine culture test is not done for screening in pregnant woman. For treatment of such patients usually only empirical antibiotics are used.

In our study the prevalence was calculated and is found to be 16.5% which was lower when compared to the studies done in Benin, Nigeria (45.3%), Sagamu, Nigeria (23.9%) and higher a compared to studies done in Ghana (7.3%) and Euthopia (7%). It is found in our study that the prevalence of asymptomatic bacteriuria in the age group of 26-30 year (20.2%) was higher followed by in age group 31-35 year (15.5%). our results were compared to other studies were found similar with them. Maternal age more than 35 was also considered as a risk factor due to multiparity such patients may acquire infection repeatedly. in this study the most common pathogen found was E.Coli (55.7%) followed by klebsiella (27.5%) due to the stasis of urine and poor genital hygiene.

In this study it also found that drug sensitivity was done it is found to be 100% sensitive to nitrofurantoin. Hence it is suggested that urine culture should be done in all antenatal patients as tool for diagnosis of asymptomatic bacteriuria to ensure adequate treatment of the patient and prevention of major complications in both mother and newborn.

### Conclusion

Our study showed a 16.5% prevalence of asymptomatic bacteriuria in asymptomatic pregnant patients which was higher than few studies done in Ghana and Euthopia. This is also a

matter of great concern because urinary tract infection may lead to some serious complications in mother and also in fetus. Most common pathogen found was E.coli and highest drug sensitivity was found for nitrofurantoin. Hence it is advised that urine culture test is to be done in all asymptomatic patients who attend the opd for screening of asymptomatic bacteriuria.

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