Vaginitis is the most common problem in adult women. The objective of this study is to determine the prevalence of microorganism and common coinfecions from pap smear in rural area of Enathur, Kancheepuram. A study was conducted in the Department of pathology, Meenakshi Medical College and Research Institute, Kancheepuram. Samples of Pap smear from patients with symptoms of vaginitis were studied from June 2016 to May 2017. All the smears were stained with papanicoulo and hematoxylin-eosin stain. A total number of 625 cases are collected and statistically analyzed.

The microorganisms noted in this area are coccobacilli, candida and trichomonas. The most common cause for vaginitis is bacterial vaginosis, and the frequent mixed infection is Bacterial vaginosis with candidiasis. Simple conventional pap smear test is helpful to identify the causative organism for vaginitis.

**KEYWORDS**

Bacterial vaginosis, Vaginal candidiasis, Trichomonas vaginalis, Atypical squamous cells of undetermined significance (ASCUS), High grade squamous intraepithelial lesions (HSIL) and Papanicoulo smear.

### Material and Methods

The study of causes for vaginitis was conducted in the Department of Pathology, Meenakshi Medical College and Research Institute, Enathur, Kancheepuram, over a period of one year from June 2016 to May 2017. This study involves data of 625 patients referred for cytological evaluation of Pap smear. All pap smear were collected by Department of Gynaecology and sent to Pathology laboratory in a coplin jar containing 95% ethanol. All the smears were stained with routine Papanicoulo stain and hematoxylin+Eosin stain. All the smears were examined carefully for various cytological lesions and causative organisms. The reports were given as per Bethesda 2001 and obtained data has been analysed.

**Inclusion criteria:** All the patients who attended Gynecology Out-Patient Department with the symptoms of vaginitis were included in the study.

**Exclusion criteria:** Patient who received antibiotics previously, prolapse uterus, diagnosed clinically as Intraepithelial lesion / malignancy and routine cervical screening samples were excluded from the study.

### Result:

In our present study, totally 625 Pap smear samples from patients ranged from 20 to 70 years were evaluated. Majority of patients were in the age between 25 to 45years.

### Table-1: Age distribution

<table>
<thead>
<tr>
<th>S. NO</th>
<th>Age</th>
<th>Number of cases</th>
<th>Percentage of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20 – 30</td>
<td>136</td>
<td>22%</td>
</tr>
<tr>
<td>2.</td>
<td>31-40</td>
<td>188</td>
<td>30%</td>
</tr>
<tr>
<td>3.</td>
<td>41-50</td>
<td>178</td>
<td>28%</td>
</tr>
<tr>
<td>4.</td>
<td>51-60</td>
<td>93</td>
<td>15%</td>
</tr>
<tr>
<td>5.</td>
<td>61 and above</td>
<td>32</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>625</td>
<td></td>
</tr>
</tbody>
</table>

Out of total 625 cases, 348 cases are Bacterial vaginosis, 41 cases are candidiasis, 20 cases are atrophic vaginitis, 11 cases are Trichomonas Vaginalis, 6 cases are Atypical squamous cells of undetermined significance (ASCUS), 8 cases are HSIL, 10 cases are unsatisfactory, 86 cases are Bacterial Vaginosis with candidiasis, 28 cases were Trichomonas Vaginalis with Bacterial vaginosis, 39 cases were atrophic vaginitis with Bacterial vaginosis, 16 cases were ASCUS with Bacterial vaginosis and 12 cases were ASCUS with candidiasis (Refer Fig 1)
Figure 1: Cytological interpretation of vaginitis

The most common pathogenic microorganism diagnosed in this area is Bacterial vaginosis and most common coinfection is Bacterial vaginosis with candida. Mixed infection, microorganism associated inflammation, micro-organism associated intraepithelial lesions are also noted in this study. In this present study, Bacterial vaginosis and Trichomonas Vaginalis are common in reproductive age ranging from 25 to 45 years whereas candidiasis was seen in all the age groups.

Most common clinical manifestations of vaginitis in this study was history of thick and thin whitish discharge, blood mixed discharge, foul smelling discharge, Burning micturation, vaginal itching, abdominal pain, and low backache. Other symptoms like dyspareunia, menstrual disturbances and greenish yellow discharge are also presented. Coinfection, i.e. two infections occurring simultaneously in the same case is common in the study. It includes combination of Bacterial vaginosis with candidiasis (75%) and Bacterial vaginosis with Trichomonas Vaginalis (25%). (Refer Fig 2)

In this study, 34 cases of ASCUS were reported. In that 16 cases were ASCUS associated bacterial vaginosis and 12 cases were ASCUS associated candida (Ref Fig 3)

Discussion

Vulvo-vaginitis is a common infection that affects healthy women of all ages. One or more infections will develop once in women's lifetime, during reproductive age and postmenopausal period. In our study, the prevalent microorganism among the population of rural area, Enathur is Bacterial Vaginosis with an incidence of 55%. Most common co-infection in the present study is, Bacterial Vaginosis with candidiasis at 14%. Atrophic Vaginitis with Bacterial Vaginosis around 6.2% is mostly reported in post menopausal age group. In this study, 2.5% cases of ASCUS associated Bacterial Vaginosis, 1.9% cases of ASCUS associated candidiasis and 4.5% cases of Bacterial vaginosis with Trichomonas Vaginalis is also reported.

Barouti et al (3), reported prevalence of Bacterial vaginosis among 17% women of reproductive age group with no significant association between Bacterial Vaginosis and Trichomonas Vaginalis, which is in contrast to this study. Madivanan et al (10), reported 96% of bacterial vaginosis and coinfection with Trichomonas Vaginalis as similar to the present study. Some of studies showed that, significant relationship between Trichomonas Vaginalis and BV infection might be due to increase in vaginal pH by phagocytic action of Trichomonas Vaginalis which provides anaerobic environment, condition for the growth of bacterial microorganisms.

Renuka et al (2), in their study on 700 cases of pap smear from married women found an evidence that reproductive tract infection is one of the risk factor for cervical cancer, which is also exacerbated by poor genital hygiene. Some of the studies (6,7,9) has also reported coinfection of Bacterial Vaginosis associated with Trichomonas Vaginalis, candida, gonorrhoea and Chlamydia trachomatis.

In the present study, frequency of microorganism next to Bacterial vaginosis is candidiasis (14%) followed by Trichomonas Vaginalis (1.8%), also 1% cases were reported as HSIL, and 1.6% of cases was considered unsatisfactory.

Barouti et al (3), in his study reported 17% cases of Bacterial vaginosis, 10.6% cases of candida and 0.4% of Trichomonas vaginalis. The frequency of organism reported in this study is similar to our results. In our current study 60 to 70% cases of microorganisms was reported in reproductive age group, similar to the available literature (5,6,7,10).

Conclusion:

Vaginal infection is an important public health problem of women and its prevalence was consistent with many studies. Infection of lower genital tract was one of risk factor for cervical cancer, more attention and awareness should be created among public regarding proper personal hygiene. Pap smear is helpful to differentiate infective vaginitis from non infective vaginitis for proper management.


