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PAPANICOLAOU TEST IN WOMEN WITH ABNORMAL BACTERIOLOGIC EXAM RESULTS

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ABSTRACT

The normal vaginal flora is complex and includes various organisms, many of them conditioned pathogens. The vaginal microbiome is controlled by estrogens that is why a major difference it encountered between pre-menopausal and menopausal women. Bacterial vaginosis was associated with inflammatory changes on Papanicolaou (PAP) smears and chronic inflammation may eventually tead to potentially precancerous and cancerous processes of the cervix. We asses the importance of PAP test and early discovery of vaginal infections because bacterial vaginosis has been associated with inflammatory changes on PAP smears.

Materials and metods: Were analysed 50 patients with bacteriologic exam and PAP smear, from ambulatory (Polyclinic Constanța). Bacteriological exam was performed on smears stained Gram from vaginal secretion, collected during the same ginecological examination when PAP smears were collected. The PAP smear was conventional PAP. Samples were obtained by cervical brushing.

Results and discussions: These patients were aged between 21 and 64 year and were examined for various symptoms. The patients were classified in pre-menopausal 35% and post-menopausal 65%.The result of the bacteriologic exam showed normal flora (absence of infection) in 44% of cases and abnormal vaginal flora in 56% of the cases.

The predominant pathology was bacterial vaginosis with non-specific flora (Gram positive coci and Gram negative bacilli, absence of lactobacilli) in 38% of cases. Candida infection was present in 12% of the cases and Trichomonas vaginalis and Actynomices in 3% of the cases each.

Conclusions

The majority of patients with bacterial vaginosis (Candida, Trichomonas,Actinomyces) had Pap tests negative for intraepithelial lesion or malignancies NILM or NILM and cellular changes associated with inflammation. There may be infectious causes of abnormal Pap tests other than HPV.

Keywords: PAP, smear, bacteriologic exam, infection.

Introduction

The normal vaginal flora is complex, and includes various organisms, many of them conditioned pathogens. The primary colonizing bacteria of a healthy woman are of the genus (90–95%), the most common being L. crispatus, L. iners, L. jensenii, and L. gasseri (1).

Other bacterial species are frequently found in the vagina, such as the Gram positive cocci (Atopobiumaginae, Peptostreptococcus spp., Staphylococcus spp., Streptococcus spp., and Bacteroides spp., Fusobacterium spp., Gardnerella vaginalis, Mobiluncus, Prevotella spp.), Gram-negative enteric organisms (Escherichia coli. are frequently found in the vagina). Also, Candida is one of the commonest causes for an abnormal Pap smear test besides Human Papillomavirus (HPV) infection. Vaginal yeast infection is the commonest type of vaginal infections. Can also appear infections caused by a protozoan parasite called Trichomonas vaginalis named Trichomoniasis (2-4).

Some of the ubiquitous and facultative anaerobic bacteria are associated with bacterial vaginosis. The vaginal microbiome is controlled by estrogens that is why a major difference it encountered between pre-menopausal and menopausal women (5).

Bacterial vaginosis is the most prevalent

microbiological cause of vaginal discharge. Bacterial vaginosis was associated with inflammatory changes on Pap smears and chronic inflammation may eventually lead to potentially precancerous and cancerous processes of the cervix (6).

Material and methods

We analysed 50 patients with bacteriologic exam and PAP smear, from ambulatory. These patients were aged between 21 and 64 year and were examined for various symptoms, and were collected samples for bacteriologic exam and PAP smear.

Bacteriological exam was performed on smears stained Gram from vaginal secretion, collected during the same gynecological examination when Pap smears were collected.

„Gram stain is the most used staining in microbiology. It uses two dyes: Chrystal violet and diluted fuchsine, iodine solution as mordant and alcohol-acetone as decolorizer. In this staining, bacteria are well visible and may be differentiate in Gram positive (violet) and Gram negative (pink). Fungi stain in violet and the human cells (epithelial cells, leukocytes) are also visible" (7).

The PAP smear was conventional PAP. Samples were obtained by cervical brushing. Assessment of the preparation was done according to the 2001 Bethesda System (8, 9).

Results

The patients were analysed with bacteriologic exam and PAP smear, from ambulatory (Polyclinic Constanta).

These patients were aged between 21 and 64 year and were examined for various symptoms, not just for PAP screening. However, they were collected samples for bacteriologic exam and PAP exam.

The environment of the patients was urban: 52% and rural 48 % (Figure1)

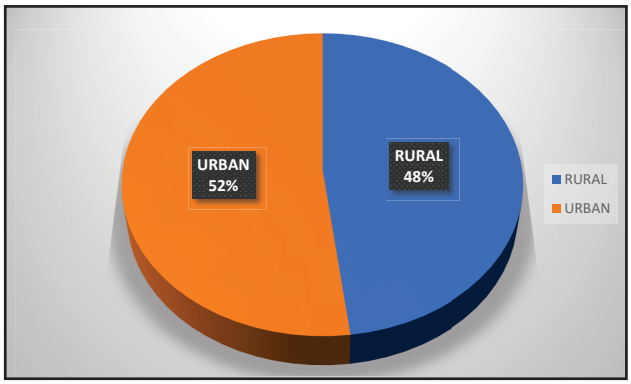


Figure 1: Patients distribution according to their enviroment

The patients were classified according to presence of menstrual cycle (pre-menopausal) 35% and after menopause (post-menopausal) 65%.(Figure2)

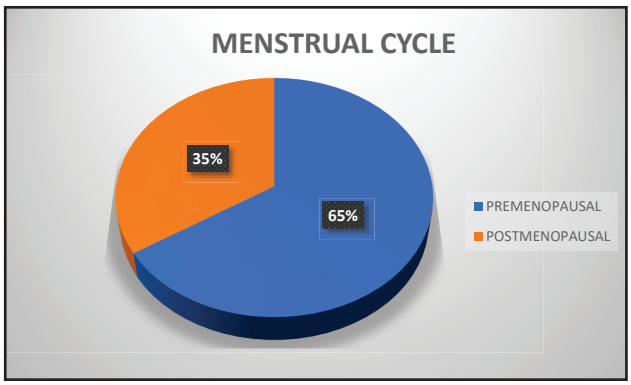


Figure 2: Chart of patients distribution according to presence or absence of menstrual cycle

The result of the bacteriologic exam showed normal flora (absence of infection) in 44% of cases and abnormal vaginal flora in 56% of the cases. The predominant pathology was bacterial vaginosis with non-specific flora (Gram-positive cocci and Gram negative bacilli, absence of lactobacilli) in 38% of cases. Candida infection was present in 12% of the cases and Trichomonas vaginalis 3% and Actynomices 3%. (Figure 3)

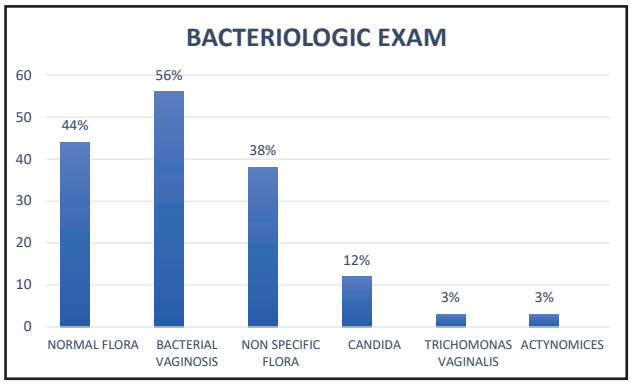


Figure 3: Results of bacteriologic exam for the patients

The result of the Pap tests were:

Only 10% of the cases were unsatisfactory for the examination, due to leukocytes clouding more than 75% of the smear surface. The rest of 90% of the cases were adequate for evaluation. (Figure4)

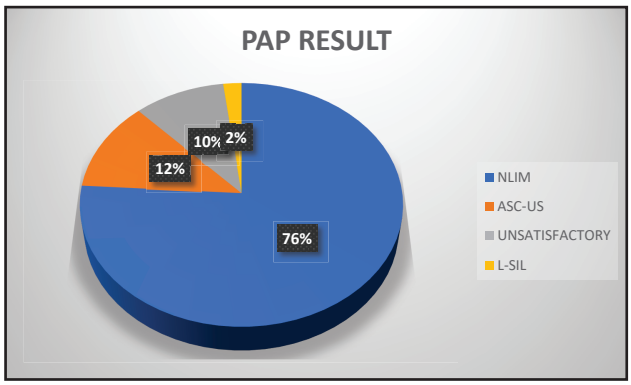


Figure 4: The results for Pap tests

The majority of patients with bacterial vaginosis, Candida, Trichomonas and Actinomyces had NILM or NILM and cellular changes associated with inflammation. (Figure5)

In two cases of ASC-US, patients had bacterial vaginosis and in one case it was identified Candida.

In one case of L-SIL, the patient was indicated PCR for HPV infection.

Inflammation was found in 4 cases without evidence of infection.

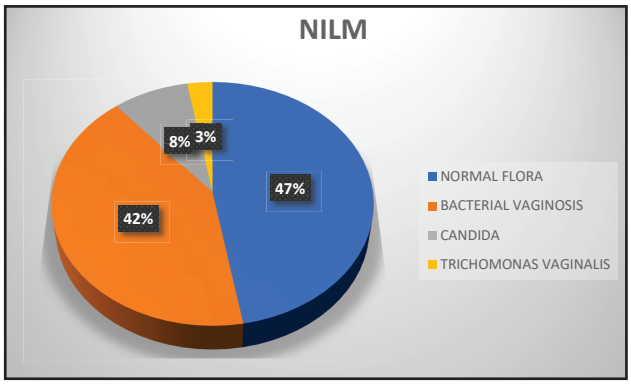


Figure 5: Bacteriologic exam and NILM results

Microscopy images (Figure 6, Figure 7, Figure 8, Figure 9)

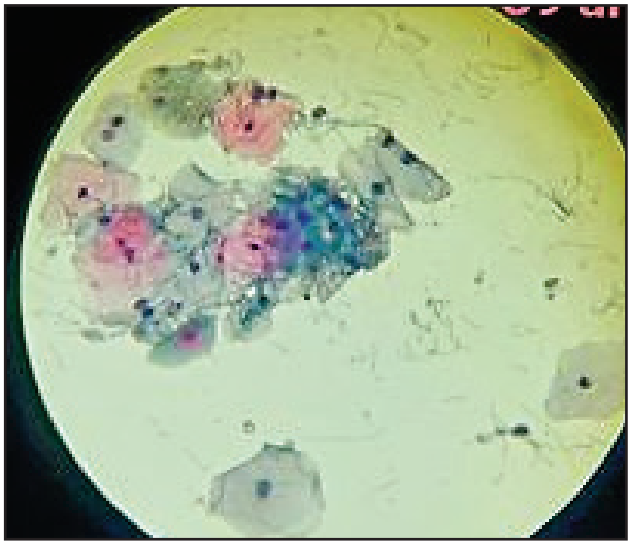


Figure 6: Negative for intraepithelial lesion or malignancy, NOS

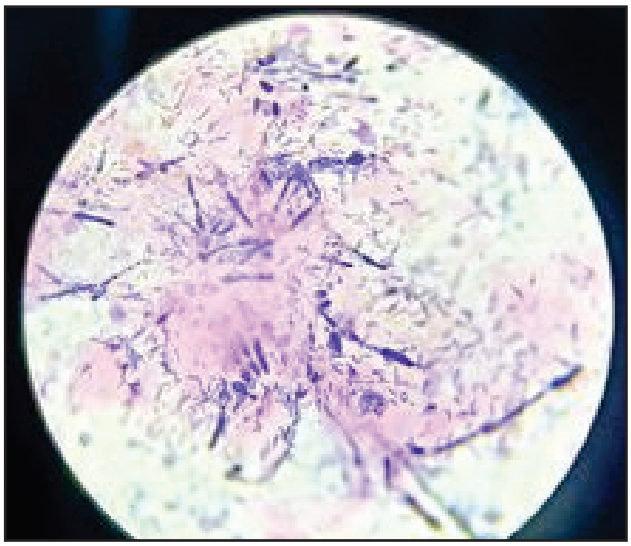


Figure 7: Yeasts (Candida species)

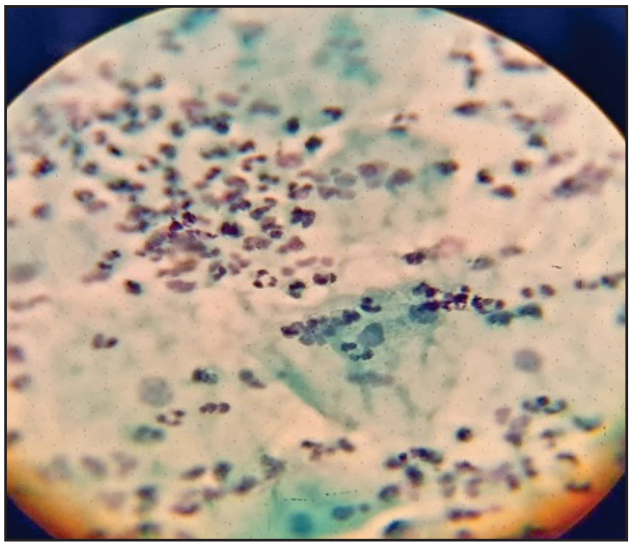


Figure 8: Unsatisfactory for evaluation

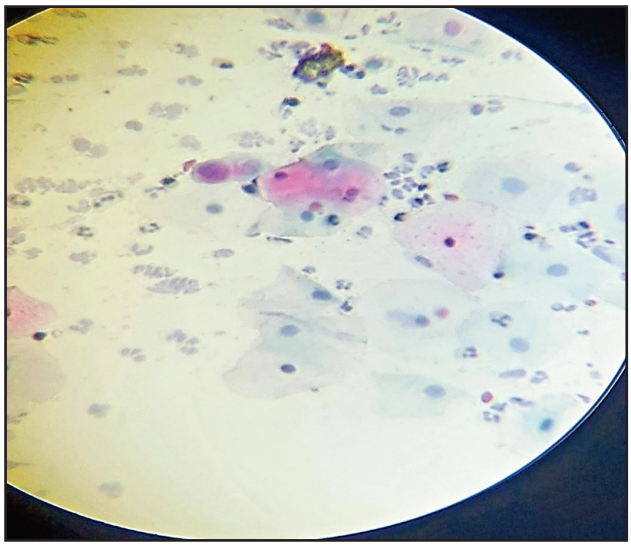


Figure 9: ASC-US (cannot exclude HSIL)

Discussions

The result of the bacteriologic exam showed abnormal vaginal flora in 56% of the cases. The predominant pathology was bacterial vaginosis with non-specific flora (Gram positive cocci and Gram negative bacilli, absence of lactobacilli) in 38% of cases. Candida infection was present in 12% of the cases and Trichomonas vaginalis and Actynomices in 3% of the cases each.

The majority of patients with bacterial vaginosis, Candida, Trichomonas and Actinomyces had Pap tests negative for intraepithelial lesion or malignancies NILM (36%) or NILM and Cellular changes associated with inflammation (6 %)

In two cases of Atypical squamous cells with unknown significance - ASC-US result patients had bacterial vaginosis and in one case it was identified Candida.

In one case of low grade squamous intraepithelial lesion- LSIL, the patient was indicated PCR for HPV infection. Inflammation was found in 4 cases without evidence of infection.

Depending on the environment, it has been observed that almost half of the patients come from rural areas, probably they cannot benefit from PAP testing where they live, or women from urban areas do not go to the Polyclinic.

Conclusion

Although the PAP test represents a method for early detection of pre cancer and cervical cancer, the test may also detect infections and abnormalities in the cervix. Most patients had bacterial vaginosis and Candida infection associated with NOS and inflammation.

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