



Original Research Article

Papsmear findings in postmenopausal women

A Kavya¹, Volga Harikrishnan^{1,*}, Chitra Srinivasan¹¹Dept. of Pathology, Saveetha Medical College, Chennai, Tamil Nadu, India

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ABSTRACT

Introduction: After menopause for many women the occurrence of certain cancers is much higher due the manner in which the hormonal changes have occurred. Among those, cervical cancer is the commonest cancer causing death among women in developing countries. In India women between 53-59 years is the peak age for cervical cancer incidence. However, women who are at the highest risk of developing cancer i.e older and women under lower economic status are not likely to undergo screening. So it becomes important that cervical cancer must be detected especially in older population hence papsmear is the screening tool used being the most cost effective and non-invasive technique.

Objectives: To study about various lesions detected with the help of papanicolaou test (papsmear) in post menopausal women and to correlate these findings with other clinical parameters.

Materials and Methods: A retrospective study was conducted at the Department of Pathology, in our Institute over a period of six months from July 2018 to December 2018 in which all the papsmear of postmenopausal women in that period were included.

Results: The incidence of negative for intraepithelial lesion/ malignancy(NILM) was about 94.6% and epithelial abnormalities was 5.37% and NIS was the common finding in NILM and ASCUS was the most common epithelial abnormality. The incidence of epithelial abnormality was high between the age group 51-60 years.

Conclusion: According to the findings of our study the incidence of epithelial abnormalities state that, awareness should be created among older women about their risk of cervical carcinoma even after their menopause and also the importance of papsmear screening in early detection and prevention of cervical cancer.

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1. Introduction

Menopause, perimenopause and postmenopause are the stages which occurs after women's monthly periods stops so this the end of women's reproductive life. The first stage in this is perimenopause which occurs before eight to ten years of menopause. Menopause is defined as complete cessation of menstruation for a period of one year and the average age of menopause is 51 years.¹ Average age of menopause in India is considered to be much lesser compared to the other western countries. The period of woman's life following menopause is known as postmenopause.²

The uterine cervix is the lowest portion of female uterus connecting the uterus with vagina. Cervical cancer

occurs when the cells of the cervix grow abnormally and invade other tissues and organs of the body. When it is invasive, this cancer affects the deeper tissues of the cervix and in case of metastasis it may even spread to other parts of the body which may include liver, lungs, bladder, vagina and rectum. Among all cancers diagnosed in women carcinoma cervix accounts about 15% worldwide.³ Especially in developing countries it is one of the most commonest cancer causing death in women.⁴ It is to be noted that in vast majority of women, cervical cancer can be prevented.⁵ It is estimated that, as stated by National Cancer Registry Program Of India approximately 100,000 women develop cervical cancer each year. In cervical cancer it is possible to detect it early during a preinvasive curable stage by screening and thus early intervention helps in preventing

* Corresponding author.

E-mail address: kavyaashok1330@gmail.com (V. Harikrishnan).

its progression into a dangerous life threatening illness.⁶ Every year in India 1,22,844 women are diagnosed with cervical cancer and 67,477 women die due to this disease.

In India women between age group 53-59 years is considered to be the peak age for cervical cancer incidence. However women who are at highest risk of developing cancer i.e. especially the older women are least likely to undergo screening. Most of the cases (85%) present in advanced and late stages and more than half (63%-89%) at the time of presentation have regional disease.⁷ Significantly the rate of death from cervical cancer steadily increases as that of their age. And it is seen that the women at elderly age are more often to be diagnosed at later stage.⁸ The reason is that most commonly women in advancing age don't prefer to go for pap test at all or they go for it very infrequently due to their lack of awareness. Most probably older women might not understand the tie-up between papsmear and cervical carcinoma. They usually think that there is no need for papsmear once they had stop having children and attained menopause which is a huge mistake they make. But the actual fact is women during menopause or post menopausal age are still at a highest risk of developing abnormal cervical cells which eventually makes a way that ends in cervical cancer. Human papilloma virus (HPV) is a key factor associated with the occurrence of abnormal cells in the cervix. So the only way that a women can be certain about any abnormal cells of cervix and prevent its progression into a cervical cancer can be dealt by a regular papsmear, taken and interpreted by a qualified health care-provider.⁹

One of the ideal screening tool for preventing cervical carcinoma is considered to be papsmear and The Bethesda System is the most widely followed system for describing papsmear findings.¹⁰ Population based screening programme will be more suitable with papsmear cervical cytology with sensitivity of 72% and specificity of 94%.¹¹ The present study is to study about the papsmear findings in post menopausal women.

2. Materials and Methods

This was a retrospective study of Papsmear cases of post menopausal women reported at the Department of Pathology in our Institute over a period of six months between July 2018 to December 2018.

First the papsmear cases were obtained from the Medical records department of our Institute, in that a total of 3352 cases were reported for papsmear between July 2018 to December 2018 out of which 261 cases were postmenopausal. Out of 261 cases, 12 cases were unsatisfactory because of scanty squamous cells associated with non specific inflammation so these 12 cases were not included in our study so 249 cases were considered as satisfactory smear for evaluation and only those 249 cases were analysed.

The papsmear was taken by qualified and trained doctors. A speculum is placed inside the vagina and scrapes the cervix with a small brush, so that the cervical cells are collected then breaks off the head of brush places it in a small tube with liquid (Liquid Based Cytology-LBC) and sends it to the lab from the Department of Obstetrics and Gynecology of our Institute. Then all smears were evaluated for adequacy and subsequently examined and reported as per the guidelines of Bethesda System. In our study all the papsmear were LBC samples and not conventional samples because they provide better clarity, smears with uniform spread, also it takes less time for screening and helps us in better handling of haemorrhagic and inflammatory samples.¹² Vault smear is also taken for identifying recurrent cervical cancer or persisting neoplasia after hysterectomy.¹³

3. Results

A total of 3352 cases were reported for pap smear findings between the period of six months. The papsmear findings were reported according to the guidelines of Bethesda System.

The Bethesda System(TBS) is a system was reporting the papsmear results i.e it gives the cytologic diagnoses of cervix and vagina. The Bethesda System was introduced in the year 1988 and revised in 1991,2001 and 2014. Accordingly the following are the criteria of The Bethesda System to report cervical cytology,

3.1. Specimen type

1. Indicating conventional smear or Liquid based cytology preparation (LBS).

3.2. Specimen adequacy

1. Satisfactory for evaluation: Describes the presence or absence of endocervical / transformation zone component and any other quality indicators like inflammation, partially obscuring blood etc.
2. Unsatisfactory : Based on whether the specimen was processed or not
 - A. Rejected specimen-Specimen rejected/not processed which may be due to several reasons like specimen not labeled, slide broken etc.
 - B. Unsatisfactory for evaluation – The specimen was fully examined and processed but considered as unsatisfactory for evaluation due the presence of scanty squamous cells or inflammation etc.

3.3. General categorisation

1. Negative for intraepithelial lesion or malignancy
2. Epithelial abnormalities

4. Results

4.1. Negative for intraepithelial lesion or malignancy

Specimens for those no epithelial abnormalities are identified are reported under this

4.1.1. Non neoplastic findings

Non neoplastic cellular variations

1. Squamous metaplasia
2. Keratotic changes
3. Tubal metaplasia
4. Atrophy
5. Pregnancy associated changes

Reactive cellular changes associated with,

1. Inflammation
 - A. Lymphocytic (follicular) cervicitis
2. Radiation
3. Intrauterine contraceptive devices (IUD)

Glandular cells status post hysterectomy

4.1.2. Organisms

1. Trichomonasvaginalis
2. Fungal organisms morphologically consistent with Candida spp.
3. Shift in flora suggestive of bacterial vaginosis
4. Bacteria morphologically consistent with Actinomyces spp.
5. Cellular changes consistent with herpes simple virus
6. Cellular changes consistent with cytomegalovirus

4.2. Epithelial cell abnormalities

4.2.1. Squamous cell

1. Atypical squamous cells of undetermined significance(ASC-US)
2. Atypical squamous cells cannot exclude HSIL(ASC-H)
3. Low- grade squamous intraepithelial lesion(LSIL)
4. High-grade squamous intraepithelial lesion(HSIL)
5. Squamous cell carcinoma

4.2.2. Glandular cell

1. Atypical
 - A. Endocervical cells(NOS)
 - B. Endometrial cells(NOS)
 - C. Glandular cells(NOS)
2. Atypical
 - A. Endocervical cells, favor neoplastic
 - B. Glandular cells, favor neoplastic
3. Endocervical adenocarcinoma in situ
4. Adenocarcinoma
 - A. Endocervical
 - B. Endometrial
 - C. Extrauterine

D. Not otherwise specified (NOS)¹⁴

The papsmears were reported according to the Bethesda System.

Table 1: Distribution of cases according to adequacy of specimen

Adequacy of specimens	No. of cases	Percentage (%)
Satisfactory smear for evaluation	249	95.4
Unsatisfactory smear	12	4.5
Grand total	261	

The smear is considered to be satisfactory for evaluation based on the presence or absence of endocervical/transformation zone component. Unsatisfactory smear due to presence of scanty squamous cell but associated with non-specific inflammation.

According to the above Table 1 two cases were considered as unsatisfactory and only the remaining 249 cases were included in our study.

According to age, majority of female undergone papsmear is between age group 50-55 years.

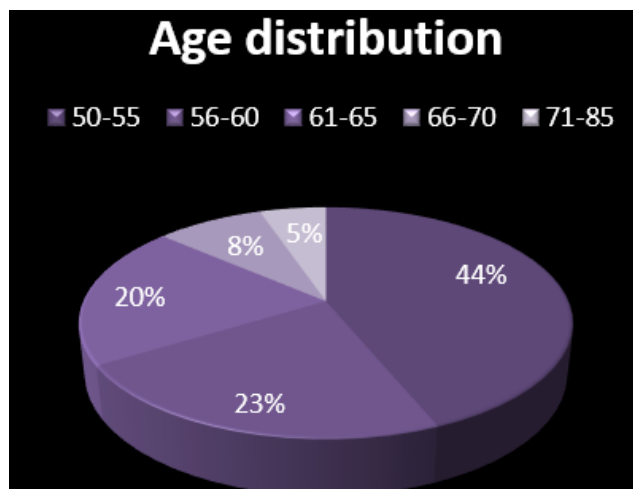


Fig. 1:

Under per speculum findings the majority, 144(55.1%) cases were found have healthy cervix and cervix erosion was found in 26(10.4%)cases which was the second most common finding then comes vault healthy with 23(8.4%) cases as shown in Figure 2.

The above table on papsmear findings shows that negative for intraepithelial lesion is common compared to epithelial abnormalities and among those NIS has the highest incidence in about 103(41.3%) cases, following that is atrophic smear with inflammation in about 56(22.4%)cases.

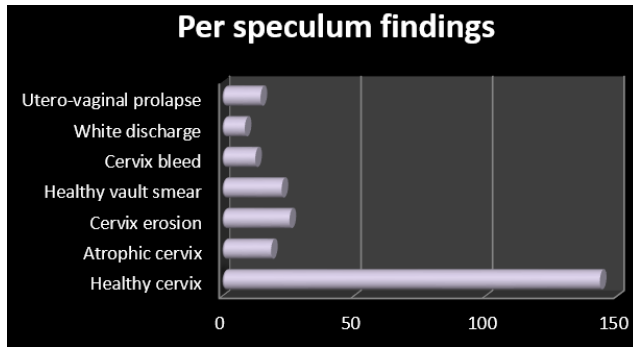


Fig. 2: Distribution of cases according to per speculum findings

Table 2: Distribution of cases according to pap smear findings

Papsmear findings	No. of cases	Percentage (%)
Negative for Intraepithelial Lesion/Malignancy		
NIS (Nonspecific inflammatory smear)	103	41.3
Atrophic smear	44	17.6
Atrophic smear with inflammation	56	22.4
Presence of infection		
Bacterial vaginosis	20	8
Candida	12	4.8
EPITHELIAL ABNORMALITIES		
ASC-US	11	4.4
ASC-H	1	0.4
HSIL	1	0.4
LSIL	1	0.4
Grand total	249	

Coming to epithelial abnormalities ASC-US has comparatively highest incidence in about 11 (4.4%) cases following that is ASC-H, HSIL and LSIL each in 1(0.4) case.

Comparing epithelial abnormalities with age the age groups 50-55 years has the highest incidence of epithelial abnormalities following that is between the age group 61-65 years as shown in Table 3.

5. Discussion

We can say that with all cancers, the key to successful treatment and cure is an early diagnosis of cervical cancer. In the past two decades cervical carcinoma is considered to be one of the most important cancers among women in India. The main objective of Papsmear screening is to detect preinvasive lesions which results in lowering the occurrence and resulting mortality from invasive cervical carcinoma. This concept is showing an extremely successful outcome.¹⁵

Under adequacy of specimens the percentage of satisfactory smear for evaluation was 64.4% in Mahadik et al which was two year based study and 60.4% in Reena Sood et al¹⁶ which was 1 year based study and in our study the percentage of satisfactory smear for evaluation was 95.4% which is a 6 months based study which is comparatively high in our study. The percentage of unsatisfactory smears reported was 14.5% in Mahadik et al, 39.5% in Reena Sood et al and 4.5% in our study so the number of unsatisfactory smears for evaluation was comparatively less in our study.

Coming to papsmear findings the total percentage of cases which showed negative for intra epithelial lesion-NILM were 41.6% in Reena Sood et al, 50.16% in Mahadik et al, and in our study it was 94.6 % so it was comparatively high in our studies.

The highest incidence of epithelial abnormalities was found in age group 51-60(1.93%) in Mahadik et al, in Reena Sood et al also it was between 51-60(4.6%) and in our study also the highest incidence of epithelial abnormalities was between age group 51-60(5.8%) According to the study of Aswathy et al¹⁷ in India the peak of cervical cancer incidence is between 55-59 years. ASCUS was the most common epithelial abnormality noted and it was about 4.2% in our study and 1.84% in Mahadik et al and it was about 0.8% in Reena Sood et al and also about 0.64% in Mulay et al¹⁸ This shows that the incidence of ASCUS was highest in our study compared to other studies and according to Mulay et al in India the incidence of epithelial abnormalities varies from 1.87-5.9%.

The next epithelial abnormality was HSIL noted in 0.4 % of cases in our study, 0.8% in Reena Sood et al, 0.68% in Ranabhat et al¹⁹ and 0.4% in Mahadik et al. It is found that HSIL is most likely to progress to invasive cancer compared to other low grade lesions so it is important to detect HSIL in early stages to prevent the incidence of its progression to invasive cancer.

The incidence of ASC-H was 0.4 % in our study, 0.8% in Reena Sood et al, it was about 0.83% in Mahadik et al and 0.54% in Saad et al²⁰ which is study in perimenopausal and postmenopausal women and based on their findings of their study they state the incidence to have HSIL is likely to have more chances with older women with ASC-H than younger women group.

The incidence of epithelial abnormality LSIL was 0.4% in our study, 1.7% in Reena Sood et al and 0.16% in Mahadik et al. Since our study was only a six month based study, comparing with other studies which was conducted for a longer period for instance about 2 years the result obtained may differ since the number is large, so conducting a study with a large may give us an appropriate result.

6. Conclusion

In today's world the incidence and mortality of cervical carcinoma is drastically decreased with countries having

Table 3: Comparing epithelial abnormalities with age

Age groups	No.of cases	ASCUS	ASC-H	HSIL	LSIL
50-55	108	9(8.3%)		1(0.9%)	
56-60	56	1(1.7%)			
61-65	62		1(1.6%)		1(1.6%)
66-70	20				
71-85	13	1(7.6%)			

well organized screening programme. So Pap smear screening is one of the best shields against the development of cervical carcinoma and cervical cancer has greater incidence of mortality among women. Papsmear is considered to be one of the cost effective and non-invasive screening tool for cervical carcinoma. The incidence of NILM in our study was about 94.6% and epithelial abnormalities is 5.37% in our study tells us there is a need to create awareness among older women as they have increased risk of cervical cancer even after their menopause. And from our study the highest risk of epithelial abnormalities is seen between the age group 51-60 years. So early detection of intraepithelial lesions helps its progression into invasive cancer and thus preventing cervical carcinoma. So it important that awareness must be created among women about the important of papsmear screening which plays a major role in early detection of cervical carcinoma.

7. Source of funding

None.

8. Conflict of interest

None.

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Author biography

A Kavya 2nd Year MBBS Student

Volga Harikrishanan Associate Professor

Chitra Srinivasan Professor

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