

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20204006>

Original Research Article

Cervical cytology profile by Papanicolaou smear in a rural setting in mid-Kerala

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Received: 25 August 2020

Revised: 09 September 2020

Accepted: 10 September 2020

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ABSTRACT

Background: With no systematic national screening programme, the rates of cervical epithelial cell abnormalities as reported by various studies range from 1.32% to 25% in India. Majority are epithelial squamous cell abnormalities that include atypical squamous cells of undetermined significance (ASCUS) and low-grade squamous intraepithelial lesion (LSIL). Worldwide incidence of adenocarcinoma and its precursors have increased over past few decades. Objectives were to study the clinical and cervical cytological profile among women attending camps in rural areas of Thrissur district of Kerala.

Methods: A cross sectional study was conducted in 214 women in the 25-65 years age group who attended cancer screening camps in rural areas of Thrissur district. Papanicolaou (Pap) smear was done using standard technique and reported using latest Bethesda classification. Pap smear results were considered as abnormal when the report was ASCUS, atypical glandular cells of undetermined significance, LSIL, high grade squamous intraepithelial lesion or invasive lesion.

Results: Of all the smears, 41.6% were negative for intraepithelial lesion or malignancy. Inflammatory smears (nonspecific and specific infection associated) were seen in 57%. Glandular cell abnormality was found in 1.4% and these women were in 31-50 years age group. Among patients with glandular cell abnormality most common symptom was discharge per vaginum.

Conclusions: The results of this study may be a pointer to an increase in glandular cytological abnormalities in our population and needs further large-scale studies to confirm. Current screening methods of Pap smear alone may not be adequate to pick up these lesions.

Keywords: Pap smear, Atypical glandular cells, Cervical cytological profile

INTRODUCTION

Globocan 2018 figures show that worldwide cervical cancer is the fourth leading female cancer both in incidence and mortality. India has the maximum number of deaths (60,000/year) in the world.¹ In India cervical cancer is the second most common cancer in women aged between 15-45 years and more than 436 million women aged 15 years or more are at risk.²

Cervical cancer can be diagnosed at the pre-invasive stage with adequate and repetitive cytological screening with Papanicolaou (Pap) smears.³ But there is very little awareness about screening or prevention of cervical cancer, even in Kerala, which is the most literate state of India. Only 2.3% women were aware of cervical Pap smear screening in a study among rural women attending camps in central Kerala.⁴ In developed countries, population-based screening has decreased the annual incidence and

prevalence of cervical cancer by 50-70%.⁵ It is possible to detect the cancer in early stages thereby reducing mortality and morbidity by proper screening for cervical cancer.⁶

Corresponding reduction in incidence of cervical adenocarcinoma has not been reported as a result of cervical screening strategies. In fact the proportion of adenocarcinoma to squamous carcinoma has doubled over the past few decades and current screening practices may not be adequate to pick up the precursor lesions for adenocarcinoma.⁷ A Canadian study reported that the incidence of cervical adenocarcinoma increased 3 fold in the age group 20-34 years and 2 fold in the age group 35-49 years.⁸

With the absence of a systematic national cervical screening programme, the prevalence of cervical epithelial abnormalities reported by various studies in India ranges from 1.32% in Ahmedabad to 25% in Guwahati.^{9,10}

Traditionally atypical glandular cells (AGC) is considered an uncommon cytologic diagnosis, occurring in approximately 0.18 to 0.74% of cervical smears. But it requires detailed evaluation since 20 to 50% will harbour significant histologic abnormalities, such as cervical intraepithelial neoplasia, adenocarcinoma in situ or adenocarcinoma of cervix or endometrium.¹¹

There is no study in published literature which has documented the cytological profile of cervical smear in women of Thrissur district of Kerala. The present study was undertaken with the objective to identify clinical and cytological profile among women attending screening camps.

METHODS

This cross-sectional observational study has been carried out in 214 women in the 25-65 years age group who attended cancer screening camps conducted by GMC Thrissur and SNIMS in rural coastal areas (selected wards of Thalikulam, Edamuttam and Thriprayar) of Thrissur district between June to December 2017 and who consented to the study. Women who had a prior Hysterectomy and no cervix were excluded from the study. History and clinical symptoms were collected using a questionnaire that was peer reviewed and tested.

After informed consent, all the women were clinically examined and pap smears with Ayre's spatula and cytobrush were obtained. The cytological diagnosis after examining the pap smears were obtained at a certified lab and was reported by the same pathologist using latest Bethesda 2014 classification. Pap smear results were considered as abnormal when the report was atypical squamous cells of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), high grade squamous intraepithelial lesion (HSIL), AGC or invasive lesion. The data was entered in Microsoft Excel and was analyzed by calculating percentages.

RESULTS

A total of 214 women in the age group 25-65 years who underwent screening by conventional Pap technique were included in the study. In the study majority of women were in the age group between 30 to 50 years (65.9%). Almost three fourth women (71.96%) had a parity of 1 or 2 (Table 1).

Table 1: Demographic variables.

Variables	Number	Percentage
Age group (years)		
<30	5	2.3
30-50	141	65.9
>50	68	31.8
Education		
Uneducated	4	1.86
School	167	78.03
Graduate	43	20.09
Parity		
Nulliparous	7	3.27
1 or 2	154	71.96
>2	53	24.76

41.6% of smears were negative for intraepithelial lesion or malignancy (NILM). Inflammatory (both nonspecific and those associated with specific infections like bacterial vaginosis, *Trichomonas vaginalis* and *Candida*) smears were seen in 57% and atypical glandular cells was found in 1.4% (Figure 1).

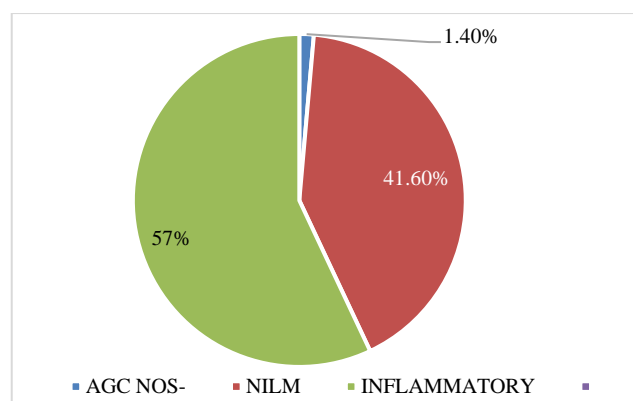


Figure 1: Distribution of patients according to Pap smear findings.

Among inflammatory smears, 33.6% were in the age group 31-50 years. All the patients with glandular cell abnormality were in the age group 31-50 years (Table 2).

Among 3 persons with glandular cell abnormality most common symptom was discharge PV. Major symptoms reported in the study population were discharge per vaginum (discharge PV) and postmenopausal bleeding. Majority of women with discharge PV (29.4%) had an inflammatory smear report (Table 3).

Table 2: Distribution of cervical smear finding with age.

Age range (years)	NILM		Inflammatory		AGC	
	Number	%	Number	%	Number	%
<30	3	1.4	2	0.9	0	0
31-50	66	30.8	72	33.6	3	1.4
>50	20	9.3	48	22.4	0	0

Table 3: Distribution of cervical smear findings with clinical symptoms.

Symptoms	NILM		Inflammatory		AGC NOS (not otherwise specified)		Total	
	Number	%	Number	%	Number	%	Number	%
Postcoital bleeding	0	0	3	1.4	0	0	3	1.4
Postmenopausal bleeding	4	1.85	6	2.78	1	0.47	11	5.1
Discharge PV	27	12.6	63	29.4	2	0.9	92	43

DISCUSSION

Traditionally AGCs is a relatively uncommon cytologic diagnosis occurring in approximately 0.18 to 0.74% of cervical smears.¹¹ The profile of cervical cytology in our study population was slightly different from similar studies in that the predominant abnormal smear after inflammatory was AGCs (1.4%). These AGCs were seen in the 31-50 years age group.

The predominant smear report in our study was inflammatory (both nonspecific and specific infections) (57%) which is similar to a south Indian hospital-based study on cervical cytology by Pap smear in symptomatic women. In that study, white discharge PV was the predominant symptom (52.6%) and majority of patients (88%) had an inflammatory smear. The incidence of ASCUS was 5% and there were no AGCs. ASCUS, LSIL and HSIL mainly presented with white discharge.¹²

In a camp-based Pap smear screening done in Delhi also the most common symptom reported was white discharge PV (28.5%) and the incidence of premalignant lesions in smear report was 4.6% with no AGCs.¹³

In a north Indian hospital-based study of pap smears done in 7127 women, there were 2% abnormal epithelial smears of which LSIL was the most common and there were no glandular cell abnormalities. Two thirds of abnormal smears were seen in women aged more than 40 years.¹⁴

In a South Indian hospital-based study of 500 women, white discharge PV was seen in 30% and there were 8.4% cervical squamous cell abnormalities, of which ASCUS was predominant. There were no AGCs reported.¹⁵ ASCUS was the predominant abnormal cervical smear report (3.5%) in a study conducted in Meghalaya and there were no glandular cell abnormalities detected.¹⁶

In a study done among 3059 women in a tertiary hospital in North Kerala the percentage of epithelial abnormalities

in Pap smears was 2.15% of which LSIL was predominant (1.01%) and there were no AGCs.³

Our finding of 1.4% atypical glandular endocervical cells is slightly higher than that reported in a south Indian hospital-based study of 1000 women. In their study the most common abnormal smear was inflammatory (53.1%). The incidence of premalignant lesions was 3.5% of which LSIL was the most common (2%). There was 0.3% AGCs.¹⁷

But most of the studies done in developed countries have consistently reported the presence of AGCs.

Our finding of 1.4% is more than 0.2% AGC found in a large study done in Japan and reported in 2019.¹⁸ The incidence of AGC in a 10 year analysis of conventional Pap smears in Luxembourg was 0.05%.¹⁹

Out of 39,484 Pap smears, the percentage of AGUS cells was 1.2% in a study published in 1998, which is fairly similar to our study.²⁰

This trend in the present study conducted in rural areas of Thrissur, Kerala, India, may be a reflection in our population of increased incidence of AIS and adenocarcinoma worldwide over the past decades. It may also be due to more effective use of the cytobrush in sampling endocervical cells.

Limitations

It was a small cross-sectional study conducted among women attending camps from nearby rural areas. The final outcome after further histological diagnosis is not known.

CONCLUSION

The results of this study may be a pointer to an increase in glandular cytological abnormalities in our population and needs further large scale studies to confirm. Current

screening methods of Pap smear alone may not be adequate to pick up these lesions.

ACKNOWLEDGMENTS

Authors would like to thank all residents and house officers of Department of Obstetrics and Gynaecology, GMC, Thrissur and SN Medical College, Aluva who actively participated in the camps. They would also like to thank the Department of Community Medicine, GMC, Thrissur for their support.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Jayaprakash M, Menon S, Eralil GJ, Alok KP, Jose R. Cervical cytology profile by Papanicolaou smear in a rural setting in mid-Kerala. *Int J Reprod Contracept Obstet Gynecol* 2020;9:4000-3.