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Original Research Article

Insights Of Free Cervical Cancer Screening Camp Held at A Tertiary Care Hospital - A Step Towards the Rise of Preventive Approach in Healthcare.

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Abstract

Background: Cervical cancer remains a leading cause of cancer-related morbidity and mortality among Indian women, despite being largely preventable through early detection and treatment. This study evaluates the cytological outcomes and clinical correlations from a free cervical cancer screening camp conducted at a tertiary care centre at DVVPF's Medical College and Hospital, Ahilyanagar, Maharashtra, India. **Methods:** An observational study was conducted among 211 women irrespective of age who attended the free cervical screening camp. Cervical samples were collected and analysed using the 2014 Bethesda System. Clinical symptoms and per speculum findings were documented and correlated with cytological results. **Results:** The majority of participants 106/211 (50.2%) participants were in the 31-40 year age group. Cytological analysis revealed that 142/211 (67.3%) of smears were Negative for Intraepithelial Lesion or Malignancy (NILM), while 3/211 (1.42%) showed NILM with inflammation and 4/211 (1.9%) showed NILM with atrophic changes. Premalignant lesions were identified in 5.1% of cases, including ASC-US 6/211 (2.8%), ASC-H 1/211 (0.5%), LSIL 2/211 (0.9%) and HSIL 4/211 (1.9%). Notably, 147/211 i.e. 69.7% of participants were asymptomatic and had a clinically healthy looking cervix, underscoring the silent progression of cervical pathology. A small proportion 9/211 (4.3%) of smears were unsatisfactory due to technical limitations. Opportunistic detection of infections such as bacterial vaginosis and candidiasis further highlighted the broader diagnostic utility of Pap smears. **Conclusion:** The findings reinforce the critical role of routine cervical cancer screening, particularly among asymptomatic women, in detecting early and pre-invasive lesions. The study underscores the need for widespread, accessible screening programs integrated into primary healthcare, along with improved sample collection practices and community education. Such initiatives are essential to reduce the cervical cancer burden and advance women's reproductive health in resource-limited settings.

Keywords: Cervical cancer, Pap smear, Premalignant lesions, ASC-US, ASC-H, LSIL, HSIL, Cytological screening, Asymptomatic women, Reproductive age group, Bethesda system, Public health intervention, Opportunistic infection detection

Introduction:

Globally, there are an estimated 20 million new cases of cancer and 9.7 million deaths attributed to cancer. Among women worldwide, cervical cancer ranks as the fourth most common cancer, following breast, lung, and colorectal cancers. However, in India, cervical cancer is the second most common cancer affecting women, trailing only breast cancer.¹ (Globocan,2022). This significant prevalence underscores the critical public health challenge posed by cervical cancer in the country. Each year, there are about 660,000 new cases of cervical cancer diagnosed and 350,000 deaths, with over 90% of these cases occurring in developing countries. By 2050, it is projected that there will be one million new cases annually, with 90% still concentrated in developing countries.² (WHO fact sheets,2024). This high prevalence underscores the urgent need for effective prevention and control measures.

India accounts for approximately one-sixth of the global burden of cervical cancer and one-fifth of the global deaths from the disease. India reported approximately 123,907 new cases of cervical cancer, with around 77,348 deaths attributed to the disease.³

With a population of 511.4 million women aged 15 years and older who

are at risk³, there is a critical need for comprehensive cervical cancer prevention strategies, including improved screening, vaccination programs, and public awareness campaigns to address this significant health challenge.

Cervical cancer is essentially preventable cancer as it has long pre-invasive stage. It has been shown that it is possible to screen and treat cervical cancer in early stages with high success even in rural India⁴ WHO has recommended elimination of cervical cancer by doing 90% coverage of HPV vaccination of girls aged 9 to 14 years. 70% screening with high performance test of women aged between 35 to 45 years. 90% of women identified should receive treatment for precancerous lesion or invasive cancer⁴

This study of Pap Smear Screening Camp held at DVVPF's Medical College and Hospital, Ahilyanagar is a step to study the importance of the parameters used in early detection of Cervical Cancer. This study is to know the prevalence of pre-invasive lesion of cervical cancer via Pap smear screening.

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Methodology

This is an Observational Study carried out taking into consideration women attending Free Cervical Screening Camp held at DVVPF's Medical College and Hospital, Ahilyanagar, Maharashtra, India. The study was approved by Vikhe Patil Institute of Medical Sciences (VIMS) (Institutional Ethics Committee) for Medical, Nursing and

Physiotherapy Colleges of VIMS, Ahilyanagar, Maharashtra.

Pap Smear Screening was done on 211 women attending Free Cervical Screening Camp irrespective of age held at DVVPF's Medical College and Hospital, Ahilyanagar, Maharashtra, India.

Women who were asymptomatic and also with complaints and/or symptoms of White PV Discharge, Abdominal Pain, Post Coital

Bleeding, Irregular Bleeding, Increased frequency of Micturition, Burning Micturition, Something coming out Per Vaginum, Post Menopausal Bleeding, Hypertrophic Cervix, Cervical Erosion/Ectropion Cervix, Cervix bleed on touch, UV Prolapse were included in study. For the above Clinical history the predetermined proforma was used which was sent to Department of Pathology along with the Slide Sample for cytopathological examination.

Sample collection of cervix tissues was done by Department of Obstetrics and Gynaecology, after examining the cervix in lamp light with the help of ausco's speculum, cervical cells were collected with the help of Ayre's spatula and cytobrush after clearing the mucus with a cotton swab so that it did not interfere with sample collection and spreading of cells on the slide. The sample collected from ectocervix and endocervix was spread on a slide evenly for Pap smear test and was added in 95% ethyl alcohol as fixative in coplin jar for fixing the smear on the slide. The slides were stained with conventional pap staining

procedure and sent to the Department of Pathology for pap staining and cytopathological examination. Based on the morphological features, the cytology and infection status was reported. The routine Pap smear was also useful to identify various infections of the vagina and cervix like 'Trichomonas vaginalis' infection in which numerous cytoplasmic reddish granules and occasional nuclei are seen. In 'Candidiasis' filamentous slender structures are seen. The 'Gardenella Vaginalis' infection shows small and short gram-variant coccobacilli clustered onto the squamous epithelial cells while the 'Clue Cells in Bacterial Vaginosis' are identified by presence of epithelial cells covered with gram variable bacilli indicating bacterial vaginosis, this appears purplish as compared to pinkish-red epithelial cells.^{5,6} Laboratory reports were reported according to the new Bethesda System for Reporting Cervical Cytology 2014.

RESULTS

Table 1: Age Distribution

Sr. No.	Age in Years	Total	Percentage
1.	<30	40	18.95%
2.	31-40	106	50.23%
3.	41-50	46	21.80%
4.	>50	19	9.00%
	Total =	211	

Table 2: Spectrum of Pap Smear Abnormalities

Sr. No.	Findings	Total	Percentage
1.	Unsatisfactory Smears	9	4.26%
3.	NILM	142	67.29%
2.	Inflammatory Smears, NILM	37	17.53%
4.	Inflammatory Smears	3	1.42%
5.	Atrophic Smears, NILM	4	1.89%
6.	Atrophic Smears	3	1.42%
7.	ASC-US	6	2.84%
8.	ASC-H	1	0.47%
9.	LSIL	2	0.94%
10.	HSIL	4	1.89%
11.	Squamous Cell Carcinoma	0	0.00%
12.	AGC	0	0.00%
13.	Adenocarcinoma	0	0.00%
	Total =	211	

Table 3: Correlation of Age with Various Lesions

Age	Unsatisfactory Smears		NILM		Inflammatory Smears, NILM		Inflammatory Smears		Atrophic Smears, NILM		Atrophic Smears		ASC-US		ASC-H		LSIL		HSIL		SCC		AGC		Adenocarcinoma	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<30	0	00	2	19.01	1	32.43	0	00	0	00	0	00	0	00	0	00	0	00	0	25	0	0	0	0	0	0
31-40	0	33.33	7	53.19	2	54.05	0	66.67	0	00	0	00	0	33.33	0	10	0	50	0	25	0	0	0	0	0	0
41-50	0	44.44	3	21.88	0	13.57	0	33.33	0	25	0	00	0	33.33	0	00	0	50	0	25	0	0	0	0	0	0
>50	0	22.22	0	05.00	0	00	0	00	0	00	0	75	0	33.33	0	00	0	00	0	25	0	0	0	0	0	0
Total =	0	4.26	14	67.29	3	17.53	0	1.42	0	1.89	0	1.42	0	2.84	0	0.47	0	0.94	0	1.89	0	0	0	0	0	0

Table 4: Distribution of Symptoms

Sr. No.	Symptoms	Total	Percentage
1.	Asymptomatic	147	69.66%
2.	White PV Discharge	35	16.58%
3.	Pain in Abdomen	09	04.26%
4.	Post Coital Bleeding	02	00.94%
5.	Irregular Bleeding	15	07.10%
6.	Frequency of Micturition	06	02.84%
7.	Something coming out Per Vaginum	00	00.00%

Table 5: Distribution of Per Speculum Findings

Sr. No.	Findings	Total	Percentage
1.	Healthy Cervix	147	69.66%
2.	White PV Discharge	35	16.58%
3.	Hypertrophic Cervix	06	2.84%
4.	Cervical Erosion/Ectropion	17	8.05%
5.	Cervix bleeds on touch	05	2.36%

6.	UV Prolapse	00	0.00%
7.	Post-Menopausal Bleeding	02	0.94%

Table 6: Correlation of Symptoms with Various Lesions

Pap Smear Findings	Symptoms						
	Asymptomatic	White PV Discharge	Pain in Abdomen	Post Coital Bleeding	Irregular Bleeding	Frequency of Micturition	Something coming out Per Vaginum
Unsatisfactory Smears	04	01	01	02	01	00	00
NILM	99	24	06	00	13	05	00
Inflammatory Smears, NILM	27	08	01	00	00	00	00
Inflammatory Smears	01	02	00	00	00	00	00
Atrophic Smears, NILM	03	00	01	00	00	00	00
Atrophic Smears	02	00	00	00	00	01	00
ASCUS	06	00	00	00	00	00	00
ASCH	01	00	00	00	00	00	00
LSIL	01	00	00	00	00	00	00
HSIL	03	00	00	00	01	00	00
SCC	00	00	00	00	00	00	00
AGC	00	00	00	00	00	00	00
Adeno. CA.	00	00	00	00	00	00	00

Table 7: Correlation of PV Findings with Various Lesions

Pap Smear Findings	PV Findings						
	Healthy Cervix	White PV Discharge	Hypertrophic Cervix	Cervical Erosion/Ectropion	Cervix bleeds on touch	UV Prolapse	Post Menopausal Bleeding
Unsatisfactory Smears	04	01	00	01	01	00	01
NILM	99	24	06	11	03	00	00
Inflammatory Smears, NILM	27	08	00	04	01	00	00
Inflammatory Smears	01	02	00	00	00	00	00
Atrophic Smears, NILM	03	00	00	00	00	00	01
Atrophic Smears	02	00	00	00	00	00	00
ASCUS	06	00	00	00	00	00	00
ASCH	01	00	00	00	00	00	00
LSIL	01	00	00	01	00	00	00
HSIL	03	00	00	00	00	00	00
SCC	00	00	00	00	00	00	00
AGC	00	00	00	00	00	00	00
Adeno. CA.	00	00	00	00	00	00	00

DISCUSSION

This research discusses the prevalence of cervical cancer at a tertiary care hospital among patients attending free cervical cancer screening camp held at DVVPF's Medical College and Hospital, Ahilyanagar, Maharashtra, India.

Total of 211 participants were taken into consideration for study out of which 40 participants i.e. 18.95% were from age group under 30 years of age, 106 participants i.e. 50.23% were from 31 to 40 years i.e. reproductive age group, 46 participants i.e. 21.80% from 41-50 years of age group i.e. perimenopausal age group, while 19 participants i.e. 9% participants were from age group above 50. A few pap smears of about 9 participants were regarded as unsatisfactory due to various reasons most common being paucicellularity of smears and others being superficial smear collection and haemorrhagic smears.

The whole spectrum of pap smear abnormalities was studied including NILM, NILM with Inflammation, Inflammatory Smears only, NILM with Atrophic changes on smear, Atrophic Smears only, ASC-US, ASC-H, LSIL, HSIL, Squamous Cell carcinoma, AGC and Adenocarcinoma. The most common finding among these was found to be NILM with 142 participants, another group of 37 women had NILM with Inflammation, few women to be precise 4 had NILM with atrophy while in about 3 participants each only Inflammation and Atrophy was found. 6 women were reported as having ASC-US, only 1 was reported ASC-H, LSIL was reported in 2 participants while HSIL was reported in 4, other abnormalities were not reported in any of the participants taken for study. A correlation of various lesions as above was done with age group and it was found that in less than 30 years age group with total 40 participants, 27 were reported with NILM, 12 had NILM with Inflammation and 1 participant was reported with HSIL. In the age group of 31-40 which had maximum participants of 106, 76 were reported with NILM, 20 had NILM with Inflammation, 2 were reported as Inflammatory Smears only, 2 were reported as having ASC-US, 1 participant each was reported under category of ASC-H, LSIL and HSIL while the Smears of 3 participants were considered to be unsatisfactory

for any opinion due to paucicellularity of smears. In age group of 41 - 50 years of age with total of 46 participants 31 were reported as NILM, 5 had NILM with Inflammation, 1 participant was reported as having Inflammatory Smears, 1 participant had NILM with Atrophic changes on smear. 2 women from this age group were reported with ASC-US and 1 participant each was reported under LSIL and HSIL category in this age group while 4 were considered as having unsatisfactory smears as 2 were paucicellular, 1 participant's smear showed only endocervical cells denoting superficial smear collection, while 1 participant's smear was found to be haemorrhagic i.e. blood obscuring the target cells. From the age group of greater than 50 years of age which had total 19 women, 8 were reported with NILM, 3 were reported having NILM with atrophic changes on Smears, while 3 were reported as having Atrophic Smears only. 2 women from this age group were reported with ASC-US and 1 was reported with HSIL while 2 participants from this age group had unsatisfactory smears for reporting due to paucicellularity of smears.

Distribution of symptoms and also PV findings were taken into consideration as provided in the requisition sent by the Obstetrics and Gynaecology Department and a correlation of these was done with the pap smear lesions as discussed in tables above. Out of 211 about 147 participants were asymptomatic and had healthy looking cervix while 35 had white PV discharge, 9 were reported with pain in abdomen, 2 participants had post coital bleeding, 15 had Irregular bleeding and 6 had Frequency of Micturition while no women had complaint of something come out per vaginum. Out of the PV findings excluding 147 participants with healthy looking cervix and 35 with White PV Discharge as symptom and/or PV finding other findings like Hypertrophic Cervix in 6 women, Cervical Erosion in 17, Bleeding Cervix on touch in 5 women and Post Menopausal Bleeding in 2 was found while there was no participant diagnosed having UV Prolapse.

When Symptoms and PV Findings were compared with various pap smear findings it was recorded that 99 participants having NILM were asymptomatic while 24 had White PV Discharge as symptom and/or PV

finding, 6 had Pain in Abdomen, 13 had Irregular Bleeding and 5 women had Frequency of Micturition. Also Excluding the 99 asymptomatic women which had healthy looking cervix 6 had Hypertrophied Cervix, 11 had PV finding of Cervical Erosion / Ectropion, and 3 had a finding of Cervical Bleeding on Touch. The women who were reported as having Inflammatory Smears with NILM out of them 27 were asymptomatic while 8 had white PV Discharge and 1 had pain in abdomen, 4 had Cervical Erosion on PV exam while 1 had Cervical bleeding on touch. Out of the 3 women reported as Only Inflammatory Smears 1 was asymptomatic while 2 had White PV discharge. With 4 women reported as Atrophy with NILM, 3 were asymptomatic while 1 had pain in abdomen. Out of 3 women who had Atrophic Smears 2 were asymptomatic while 1 had complaint of Frequency of Micturition. All of the 6 women reported with ASCU-US and 1 women of ASC-H were found to be asymptomatic and had healthy looking cervix, while out of the 2 women having LSIL, 1 was asymptomatic and the other had Cervical Erosion / Ectropion on PV Examination. Out of the 4 women reported as HSIL 3 were asymptomatic while 1 had complaint of Irregular Bleeding.

Alongside the study of routine spectrum of pap smear abnormalities, the pap smear was also simultaneously scanned for various other infections of vagina and cervix and it was found that 1 woman of aged 30 years diagnosed as NILM had Bacterial Vaginosis Infection as the smear showed presence of clue cells while another woman aged 35 years which was reported as ASC-H had Candidiasis infection, which shows that routine pap smear is also useful for opportunistic screening of various other infections of vagina and cervix.

Conclusion

Cervical cancer is a serious health issue in India, with one woman dying from it every 8 minutes.⁷ The cervical cancer screening initiative conducted at DVVPF's Medical College and Hospital, Ahilyanagar, Maharashtra, India proved to be a valuable public health intervention, offering critical insights into the prevalence and spectrum of cervical cytological abnormalities among women across diverse age groups. With a cohort of 211 participants, the study revealed that the majority of attendees were within the reproductive age group (31-40 years), underscoring the importance of targeting this age group for early detection strategies. The most prevalent cytological diagnosis was Negative for Intraepithelial Lesion or Malignancy (NILM), accounting for over two-thirds of the screened population. However, the detection of premalignant lesions such as

ASC-US, ASC-H, LSIL, and HSIL, though albeit in smaller numbers is significantly important as early detection plays key role for better prognosis in patients with premalignant lesions. Presence of these premalignant lesions in women attending the screening programme highlights the silent progression of cervical pathology and reinforces the necessity of routine screening even among asymptomatic women with clinically normal cervixes. A small proportion of smears were deemed unsatisfactory, primarily due to technical limitations such as paucicellularity and haemorrhagic obscuration, indicating a need for enhanced training in sample collection and processing protocols. The study also demonstrated the pap smear's broader diagnostic utility, with incidental findings of bacterial vaginosis and candidiasis, affirming its role in opportunistic screening for vaginal and cervical infections. Importantly, the correlation between cytological findings and clinical symptoms revealed that a significant number of women with abnormal smears were asymptomatic, emphasizing the inadequacy of symptom-based screening alone. This finding advocates for the integration of routine, population-based cervical cancer screening programs into primary healthcare services, particularly in resource-limited settings. In conclusion, the screening camp not only facilitated early detection of cervical abnormalities but also served as a platform for community awareness and preventive education. Sustained efforts in public health outreach, coupled with improved cytological techniques and follow-up mechanisms, are essential to reduce the burden of cervical cancer and enhance women's reproductive health outcomes. With 1 in 53 Indian women likely to develop cervical cancer and 8 out of 10 women worldwide getting HPV at some point, regular screening and education are more important than ever.^{8,9}

References

1. Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, et al. Global Cancer Statistics 2022: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA: A cancer journal for clinicians. 2024 Apr 4;74(3). <https://acsjournals.onlinelibrary.wiley.com/doi/10.3322/caac.21834>
2. WHO. Cervical Cancer [Internet]. World Health Organization. World Health Organization; 2024. Available from: <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>
3. Bruni L, Albero G, Serrano B, Mena M, Collado JJ, Gómez D, Muñoz J, Bosch FX, de Sanjosé S. ICO/IARC Information Centre on HPV and Cancer (HPV Information Centre). Human Papillomavirus and Related Diseases in India. Summary Report 10 March 2023. <https://hpvcentre.net/statistics/reports/IND.pdf>
4. M Indra Shekhar Rao, Srinivas G Kasi. Purple Book- IAP Guidebook on Immunization 2022, by Advisory Committee on Vaccines and Immunization Practices (ACVIP) 4th ed. <https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://iapindia.org/iap-guidebook-on-immunization/&ved=2ahUKEwiqLPP-MCPAxXUn2MGHeM0AnkQFnoECE8QAQ&usg=AOvVaw1Iv0bdwFBAGyEgid-E-kuq>
5. Goldie SJ, Gaffikin L, Jeremy D, Goldhaber FAB, Gordillo TA, Levin C, et al. Cost-Effectiveness of Cervical-Cancer Screening in Five Developing Countries. N Engl J Med. 2005;353(20):2158-68.13. cancer
6. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. Int J Womens Health. 2015;7:405-14. <https://www.dovepress.com/epidemiology-of-cervical-cancer-with-special-focusnbspon-india-peer-reviewed-fulltext-article-IJWH>
7. NICPR ICMR. Cancer Statistics – India Against Cancer [Internet]2022 [cited 2024 July 24]. Available from: <http://cancerindia.org.in/cancer-statistics/>
8. Bobdey S, Sathwara J, Jain A, Balasubramaniam G. Burden of cervical cancer and role of screening in India. Indian J Med Paediatr Oncol [Internet]. 2016 [cited 2022 Sep 21];37(4):278–85. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5234166/>
9. Cancer Research UK. Does HPV cause cancer? [Internet].2019 [cited 2024 July 24]. Available from: <https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/infectionseg-hpv-and-cancer/does-hpv-cause-cancer>