Cervical Cancer Screening Using Pap Smear- A Hospital Based Study

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Abstract:
Background: *Cervical cancer is a major cause of death in women world wide especially in the developing countries. Lack of universal and effective screening programme using Pap smear is one of the reasons for delayed diagnosis.*
Objective: *The study aims to identify and analyze abnormal Pap smear reports to plan treatment.*
Methods: *It is a prospective observational study conducted over a period of 2 years from June 2016 to May 2018 at Government Victoria Hospital, Visakhapatnam. The study included all women attending the Gynaecology OPD between the ages 15 -70 years who were sexually active. A total of 4200 women were screened using Pap test and unsatisfactory smear was seen in 48 cases. The women with unsatisfactory smears were excuded from the study and those women with satisfactory smears were tabulated and analysed using SPSS version 22.*
Results: *The maximum number of smears were taken in the age groups 31-40 years and 21-30 years which are 1630(39.25%) and 1455(35.05%) respectively. The most common clinical presentation was vaginal discharge with 2486 women (62.4%). Normal smears were seen in 854 cases (22.46%), inflammatory smears in 2790 cases (73.4%). Epithelial cell abnormality constituted 351(8.45%) of total cases screened. Atypical squamous cell of undetermined significance (ASCUS) was the commonest epithelial cell abnormality (43.87%) followed by LSIL (20.22%), HSIL (15.66%) and AEC-NOS (9.97%).Squamous cell carcinoma constituted 7.12% of epithelial cell abnormality.*
Conclusions: *Pap smear is a simple screening test for cervical cancer which can prevent morbidity and mortality associated with it.*
Key words: *Pap smear, cervical cancer, Bethesda system*

I.   Introduction

Cervical cancer has taken a second place amongst malignancies that affects women, first leading is breast cancer [1]. Timely diagnosis and treatment allows significant reduction by maternal mortality and morbidity. Lifetime probability of cervical cancer is approximately 1 in 53 Indian women compared with 1 in 100 women in more developed regions of the world [2].
The Papanicolaou test also known as Pap test, Pap smear, cervical smear or smear test is a screening method used to detect potentially precancerous and cancerous processes in the cervix. Greek doctor Georgios Papanikolaou invented this test and it was named after him [3].

II.   Objective

The study aims to identify and analyse abnormal Pap smear reports to plan treatment.

III. Material And Methods

It is a prospective observational study conducted over a period of 2 years from June 2016 to May 2018 at Government Victoria Hospital, Visakhapatnam. The study included all women attending the Gynaecology OPD between the ages 15 -70 years who were sexually active. Women with pregnancy and sexually inactive women beyond 70 years were excluded from study .A total of 4200 women were screened using Pap test and unsatisfactory smear was seen in 48 cases. The women with unsatisfactory smears were excuded from the study.
Evaluation was done using Bethesda system 2014
• Negative for intraepithelial lesion or malignancy
• Epithelial cell abnormalities
 Squamous cell abnormalities
a) Atypical squamous cells (ASC)

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b) ASC of undetermined significance (ASC-US)

c) ASC, cannot rule out high grade lesion (ASC-US)

d) Low-grade squamous intraepithelial lesion (LSIL)

e) High grade squamous intraepithelial lesion (HSIL)

f) Squamous cell carcinoma

 Glandular cell abnormalities

a) Atypical glandular cells specify site of origin, if possible

b) Atypical glandular cells, favor neoplasia

c) Adenocarcinoma in situ Adenocarcinoma

• Non-Neoplastic findings

a) Cellular variations (atrophy, keratosis, metaplasia)

b) Reactive cellular changes (inflammation, repair)

c) Glandular cells status post hysterectomy

d) Organism: Trichomonas vaginalis, Fungal organisms consistent with Candida spp, Shift in flora suggestive of bacterial vaginosis, cellular changes consistent with herpes simplex virus, cellular changes consistent with cytomegalovirus, Bacteria consistent with Actinomyces spp

e) Other Non-Neoplastic findings

• Endometrial cells in woman ≥45 years of age

• Other malignant neoplasms (specified)

 The results were tabulated and analysed using SPSS version 22.

IV.   Results
TABLE 1 SMEARS TAKEN

CYTOLOGICAL SMEARS	NUMBER	PERCENTAGE OF TOTAL SAMPLES
SATISFACTORY	**4152**	
NILM	3801	
EPITHELIAL CELL ABNORMALITY	351	
UNSATISFACTORY	**48**	
INADEQUATE SAMPLES	25	
OBSCURED WITH BLOOD	23	
TOTAL	4200	

The total smears taken were 4200. However, satisfactory smears were 4152 out of which 3801 were NILM and 351 smears were ECA. 48 smears were usatisfactory out of which 25 were inadequate samples and 23 were obscured with blood.

TABLE 2 AGE DISTRIBUTION

AGE	NO.OF CASES	PERCENTAGE(%)
15-20	95	2.2%
21-30	1455	35.04%
31-40	1630	39.25%
41-50	664	15.99%
51-60	220	5.2%
61-70	88	2.1%
TOTAL CASES	4152	

The maximum number of smears were taken in the age groups 31-40 years and 21-30 years which are 1630(39.25%) and 1455(35.05%) respectively.

TABLE 3 CLINICAL PRESENTATION

CLINICAL PRESENTATION	NO.OF PATIENTS	PERCENTAGE
WHITE DISCHARGE/VAGINAL DISCHARGE	2486	62.4%
MENORRHAGIA	250	6.3%
POST COITAL BLEEDING	38	0.95%
ABDOMINAL PAIN/ DYSMENORRHOEA	239	6%
DYSPAREUNIA	18	0.45%
DYSURIA	36	0.9%
MASS PER VAGINA	163	4.1%
MASS PER ABDOMEN	115	2.9%
INTER MENSTRUAL BLEEDING	204	4.9%
PELVIC PAIN	56	1.4%
PRURITIS VULVA	26	0.65%
POST MENOPAUSAL BLEEDING	61	1.5%

ASYMPTOMATIC	508	7.3%
TOTAL	4152	100%

The most common clinical presentation was vaginal discharge with 2486 women (62.4%). Routine pap smear was taken in 508 (7.3%) women who were asymptomatic. Other clinical presentations were menorrhagia in 250(6.3%) women, abdominal pain in 239 women (6%), mass per vagina in163 (4.1%) women, intermenstrual bleeding in 204 (4.9%) post coital bleeding in 38 (0.9%) and post menopausal bleeding in 61 (1.5%) women.

TABLE 4 CYTODIAGNOSIS

CYTODIAGNOSIS	NO.OF CASES (n=3801)	PERCENTAGE
NORMAL	**854**	**22.46%**
INFLAMMATORY	**2790**	**73.4%**
NON SPECIFIC INFLAMMATION/REACTIVE CHANGES	2322	61.08%
ORGANISMS	468	12.31%
CANDIDA	233	6.1%
TRICHOMONAS	158	4.1%
BACTERIAL VAGINOSIS	77	2.02%
ATROPHY	**135**	**3.5%**
ATROPHIC VAGINITIS	**22**	**0.55%**
TOTAL	3801	

Normal smears was seen in 854 cases (22.46%), inflammatory smears in 2790 cases (73.4%) out of which nonspecific inflammation was seen in 2322 cases (61.08%).In 468 cases (12.31%) organisms were seen, candida in 233 cases (6.1%) trichomonas in 158 cases (4.1%) and bacterial vaginosis in 77 cases (2.02%). Atrophic changes were seen in 135 cases (3.5%) and atrophic vaginitis in 22 cases (0.55%).

TABLE 5 EPITHELIAL CELL ABNORMALITIES

EPITHELIAL CELL ABNORMALITIES	NO.OF CASES	PERCENTAGE OF ECA (n=351)	PERCENTAGE IN TOTAL SAMPLES (n=4152)
ASCUS(Atypical squamous cell of undetermined significance)	154	43.87%	3.70%
LSIL (Low grade squamous intraepithelial lesion)	71	20.22%	1.71%
ASC-H(Atypical squamous cell –High grade)	6	1.70%	0.14%
HSIL(High grade squamous intraepithelial lesion)	55	15.66%	1.32%
SCC(Squamous cell carcinoma)	25	7.12%	0.62%
AEC-NOS(Atypical endocervical cell-not otherwise specific)	35	9.97%	0.84%
AGC-FAVORING NEOPLASIA(Atypical glandular cell-favoring neoplasia)	05	1.42%	0.12%
TOTAL	351		

Epithelial cell abnormality constituted 351(8.45%) of total cases screened. Atypical squamous cell of undetermined significance (ASCUS) was the commonest epithelial cell abnormality (3.7%) followed by LSIL (1.7%), HSIL (1.3%) and AEC-NOS (0.84%). Squamous cell carcinoma constituted (0.62 %) of epithelial cell abnormality.

V. Discussion

Cervical cancer is a major cause of morbidity and mortality in India. According to the World Cancer statistics, >80% of all the cervical cancer cases are found in developing and low-resource countries, because of a lack of awareness and difficulty in running cytology-based screening programs. [4] More than one-fifth of all cervical cancer deaths occur in India. [5] Every year, 122,844 women in India are diagnosed with cervical cancer, and 67,477 women die from the disease. [6]

White vaginal discharge was the most common complaint of the women in the study by Pushp Lata et al [7] at 36.96%, similar to the rate in other studies. [8] In study conducted by P.Vijayalakshmi et al [9] out of 200 Pap smears analyzed 134 smears were inflammatory. Fifteen smears showed low grade squamous intraepithelial lesion (LSIL), 13 smears showed mild to moderate dysplasia, 12 smears showed high grade squamous intraepithelial lesion(HSIL) and 2 smears showed squamous cell carcinoma. In study conducted by Mandakini et al [10]. 995 Pap smears showed: Inflammatory smear were 57.5%. ASCUS were 4.1%, LSIL were 0.1%, HSIL reports were0.1%. Smears showing squamous cell carcinoma were 0.7%.

In the study by Bamanikar et al [11] the Pap smear findings revealed 88.02% as negative for

intraepithelial lesion or malignancy (NILM), 5.99% epithelial cell abnormality (ECA), and 5.99% were unsatisfactory. ECA comprised atypical squamous cells of undetermined significance (ASCUS) with 2.98%, low-grade squamous intraepithelial lesion with 1.19%, and high-grade squamous intraepithelial lesion with 0.66%. There were 36 cases (0.95%) of malignancy.In the study by Urmila Banik et al [12] screened 1699 patients,8.18% revealed epithelial cell abnormality. Altogether 1.53% smears revealed high-grade lesions and malignancy, most of which were found to be in women belonging to the 30 - 39 and ≥ 45 age group. 53.96% women were in the 20 - 44 age group and 46.04% were in the ≥ 45 age group. In 33% of cases with abnormal Pap smear the cervix was healthy per vaginal examination.

In the study by Akinfolarin AC et al,the most common abnormality was inflammatory smear 29.9%), Atypical squamous cell of undetermined significance, low-grade squamous intraepithelial lesion (LGSIL), and high-grade squamous intraepithelial lesion (HGSIL) were reported in 117 (5.7%), 209 (10.2%), and 111 (5.4%) women, respectively. Atypical glandular cell and squamous cell carcinoma were reported in (6.0%) and (1.0%), respectively.

In this study, Epithelial cell abnormality constituted 351(8.45%) of total cases screened. Atypical squamous cell of undetermined significance (ASCUS) was the commonest epithelial cell abnormality (3.7%) followed by LSIL (1.7%), HSIL (1.3%) and AEC-NOS (0.84%). Squamous cell carcinoma constituted (0.62 %) of epithelial cell abnormality.

VI. Conclusion
Pap smear tests are inexpensive and affordable by the patients. This Procedure doesn't need experts and specialists for collection of smear. Early detection of malignancy helps in prompt treatment reducing the mortality and morbidity of cancer cervix. Till today Pap smear test is the most useful screening procedure for cervical cancer

References

[1]. Dr.Samar Ghazal/Musmar, Pattern and factors affecting Pap smear test in Nablus, a retrospective study. Middle East Journal of family medicine. 2004;4:1-11.
[2]. 2.Institute for Health Metrics and Evaluation. The Challenge Ahead: Progress in Breast and Cervical Cancer. Institute of Health Metrics and Evaluation. 2011.
[3]. Pap smear. By Healthline medical review team. www. healthline.com/health/pap-smear#Overview1/2015/11.
[4]. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer. 2015;136:E359–86.
[5]. Bruni L, Barrionuevo-Rosas L, Albero G, Aldea M, Serrano B, Valencia S, et al. ICO Information Centre on HPV and Cancer (HPV Information Centre) Human Papillomavirus and Related Diseases Reports.
[6]. ICO Information Centre on HPV and Cancer. Human Papillomavirus and Related Diseases in India (Summary Report 2014.08.22) 2014.
[7]. Pushp Lata Sachan, Meenakshi Singh, Munna Lal Patel, Rekha Sachan. A Study on Cervical Cancer Screening Using Pap Smear Test and Clinical Correlation Asia Pac J Oncol Nurs. 2018 Jul-Sep; 5(3): 337–341.
[8]. Pradhan B, Pradhan SB, Mital VP. Correlation of PAP smear findings with clinical findings and cervical biopsy. Kathmandu Univ Med J (KUMJ) 2007;5:461–7.
[9]. P. Vijaya Lakshmi, S.R. Sree Gouri. Study and analysis of two hundred cervical PAP smears in our hospital. International Journal of Contemporary Medical Research 2016;3(9):2787-2789.
[10]. Mandakini M Patel, Amrish N Pandya, Jigna Modi, Cervical Pap smear study and its utility in cancer screening, to specify the strategy for cervical cancer control. National Journal of Community Medicine. 2011:2:1:49-51.
[11]. Bamanikar SA,Baravkar D,Chandanwale S, Dharwadkar A, Paranjape S. Study of cervical cytology and its correlation with clinical and histopathological findings.Clin Cancer Investig J 2016:5:403-8.
[12]. Banik U,Bhattacharjee P,Ahamad SU,Rahman Z.Pattern of Epithelial cell abnormality in Pap smear:A clinicopathological and demographic correlation.CytoJournal 2011;8:8
[13]. Akinfolarin AC,Olusegun AK,Omoladun O,Omoniyi-Esan G O,Onwundiegu U.Age and pattern of Pap smear abnormalities:Implications for cervical cancer control in a developing country.J.Cytol 2017;34:208-11