

# Spectrum of Cervical Lesions by Papanicolaou (Pap) Smear Screening in Remote Area of Bagalkot- A Camp Approach

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**ABSTRACT- Background:** Cervical screening through conventional cervical cytology is most commonly used throughout the world. The Cervical cancer is the second most common cancer worldwide and in developing countries, the leading cause of death. It is one of the most preventable and curable of all cancers.

**Methods:** This was a prospective study of 240 women with age group 20 to 60 years was carried out from May 2015 to June 2016 cytology section of pathology department, S. Nijalingappa Medical College & H.S.K Hospital & Research Centre, Bagalkot, India. Pap smears were prepared, fixed, stained and carefully examined.

**Results:** In this study, Reactive cellular changes associated with inflammation was the most common with 182 cases (75.8%) followed by Low-grade squamous intraepithelial lesions (SIL) with 11 cases (4.5%), then atypical squamous epithelial cells of undetermined significance 8 cases (3.3%), High-grade squamous intraepithelial lesions with 5 cases (2.1%), Atrophy with 3 cases (1.3%) and Atypical Glandular Cell in 3 cases (1.3%). The average age of women for all the epithelial abnormalities was 40 years.

**Conclusion:** This study will increase awareness of the Pap test and cervical cancer, thereby paving a way for the prevention of the cervical cancer.

**Key-words-** Cervical cancer, Pap smear, Squamous intraepithelial lesions (SIL), The Bethesda System

## INTRODUCTION

The Papanicolaou (Pap) smear was introduced in 1941 and became the standard screening test for cervical cancer and premalignant lesions <sup>[1]</sup>. In India, cervical cancer is the most common woman-related cancer, killing 1 woman every 8 minutes. About 5, 30, and 232 women are affected by cervical cancer in the world and about 275,008 succumb to this disease <sup>[2,3]</sup>.

According to the National Cancer Registry Program by Indian Council of Medical Research (ICMR) in the year 2007, about 1, 32, and 082 affected by cancer of the cervix every year in India and 74,118 die of the disease.

According to a recent study the burden of cancer of the cervix is increasing in India. There were 96,156 cases detected in the year 2011 and the estimated number of cases for the year 2026 is expected to be 1, 48, and 813 <sup>[4]</sup>.

The Papanicolaou cervical cytology test is capable of detecting cervical cancer at an early stage and is used widely in developed countries, where it has decreased both the incidence and mortality of the cervical cancer. <sup>[5,6]</sup> It has been estimated that the use of simple and cost-effective technique has reduced the incidence of the cervical cancer by at least 70%. Even today, many developing countries lack the facility to carry out widespread Pap screening <sup>[7]</sup>.

Many studies report that exposure to human papilloma virus (HPV), active sexual life; multiparity, hormonal contraception, genetic factors and smoking may contribute to the initiation of the cervical cancer <sup>[8-10]</sup>.

Histopathological examination is the gold standard. This correlation is also useful for continuous quality improvement, which is a must for many cytology laboratories, in particular, those laboratories that apply the

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Bethesda system in their diagnosis [11,12].

Aim of study was to determine the clinico-pathological importance of conventional Pap smear in detecting premalignant and malignant lesion of the cervix and to explore the prevalence of various epithelial cell abnormalities in remote area of Bagalkot.

## MATERIALS AND METHODS

The present study is prospective study and carried out in the duration of May 2015 to June 2016. Total 240 women with age ranges from 20–60 yrs who attended Camp organized every month at Kaladgi funded by SNMC and HSK hospital, India. In this study we have conducted Pap test in female who voluntarily consented to undergo this test. During the period May 2015 to June 2016 all female came for Pap smear test were included in the study irrespective of presence of co-morbid medical illnesses like diabetes mellitus, hypertension, thyroid disease, renal conditions, etc. Those who presented with excessive white discharge per vaginum, bleeding per vaginum, irregular menstruation, pelvic pain and dyspareunia were considered as symptomatic. Pregnant women and hysterectomy women were excluded from the study. Before taking the Pap smear we ensured that the patient was not menstruating.

### Procedure of sampling

All the symptomatic patients' undergone cervical examination and samples were taken from Squamo-columnar junction & Endocervix by Ayre's spatula & Cytobrush respectively. The smears prepared & fixed in 95% ethyl alcohol. In the laboratory the Pap staining was done and smears were evaluated by light microscopy using the 2014 Bethesda System for reporting cervical cytological diagnoses. The epithelial cell abnormalities, particularly the squamous epithelial abnormality has been categorized into atypical squamous cells (ASC) including ASC of undetermined significance (ASC-US) and ASC cannot exclude high grade squamous intraepithelial lesions (ASC-H) and squamous intraepithelial lesion (SIL). SIL was again subdivided into low-grade squamous intraepithelial lesion (LSIL) and high-grade squamous intraepithelial lesion (HSIL). Frank invasive malignancy was termed as squamous cell carcinoma. Similarly, glandular cell abnormalities were categorized into atypical endocervical cells not otherwise specified atypical endometrial cell not otherwise specified and atypical glandular cell not otherwise specified. Suspected cases were counseled and were advised to undergo colposcopic examination and biopsy for histopathological examination.

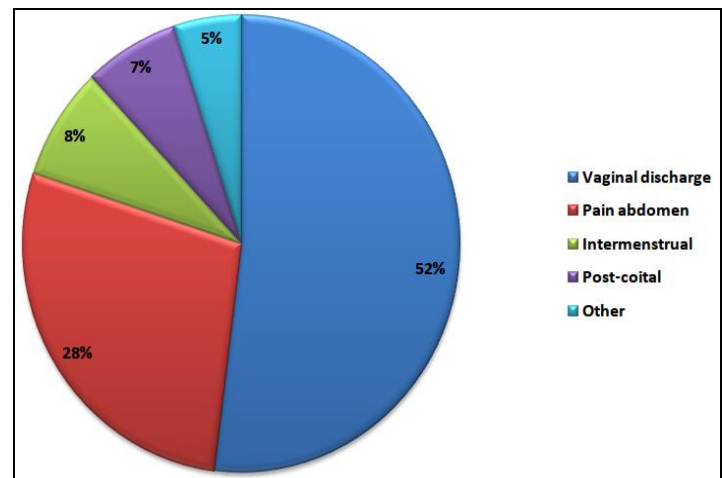
## RESULTS

A total of 240 cases were analyzed for the above mentioned period. The age of women who was attended camp range from 40 to 60 years with an average age of 50 years. The most of the women who were attended were in the age group of 30–39 years (Table 1).

**Table 1:** Age-wise distribution of total number of patients

Age (Years)	No. of cases	Percentage (%)
20-29	79	32.9
30-39	110	45.8
40-49	46	19.2
50 or >	5	02.1
<b>Total</b>	<b>240</b>	<b>100</b>

The chief complaints of the women attending camp was Vaginal discharge followed by pain in abdomen, intermenstrual bleeding, post coital bleeding and others (Fig. 1).



**Fig. 1:** Chief complaints of the women attending camp

Twelve (5%) smears were found to be unsatisfactory for evaluation. Thirteen (5.4%) were normal. The negative for intraepithelial lesion category has the following findings: reactive cellular changes associated with inflammation 182 cases (75.8%) and Atrophic changes 3 cases (1.3%). In Epithelial Cell Abnormalities: ASCUS/ASC-H was 12 cases (5%), LSIL 11 cases (4.6%), HSIL 5 cases (2.1%) and AGCUS 2 cases (0.8%) (Fig. 2, 3, 4 & 5).

All Premalignant and malignant lesions had mentioned in Table 2 and their age-wise distributions were mentioned in Table 3. The average age of women for all the epithelial abnormalities was 40 years.

**Table 2:** Finding of Pap smear cytology

S. No.	Diagnosis	No.	Percentage (%)
1	Unsatisfactory for evaluation (UE)	12	05
2	Normal	13	05.4
3	Reactive cellular changes associated with inflammation/Atrophy (RCCI/A)	185	77.1
4	ASCUS/ASC-H	12	05
5	Low-grade Squamous Intraepithelial Lesion(LSIL)	11	04.6
6	High-grade Squamous Intraepithelial Lesion(HSIL)	05	02.1
7	Squamous cell carcinoma (SCC)	00	00.0
8	AGCUS	02	00.8
9	AGCUS probably neoplastic origin	00	00.0
10	Adenocarcinoma	00	00.0
11	Others: Granulosa cell tumor	00	00.0
	Clear cell carcinoma	00	00.0
<b>Total</b>		240	100

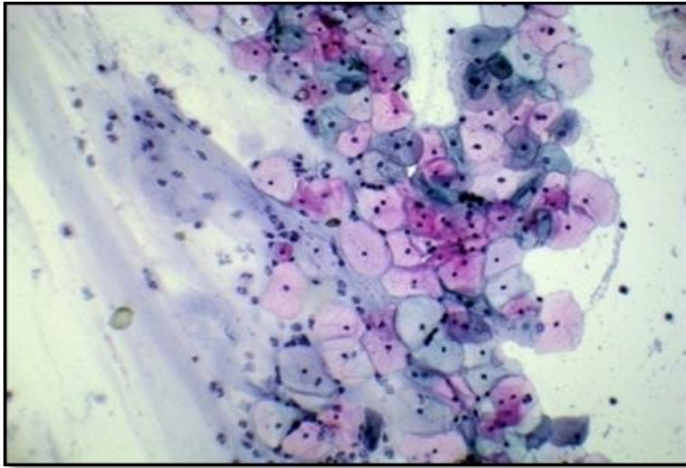
**Table 3:** Age- wise, finding of Pap smear cytology

Age	Unsatisfactory	Normal	Inflammatory	Atrophy	ASCUS	ASC-H	LSIL	HSIL	AGC	No. of cases (%)
20-29	4	5	67	-	2	-	1	-	-	79 (32.9%)
30-39	6	6	86	-	5	1	4	2	1	110 (45.8%)
40-49	2	2	28	1	2	2	6	1	1	46 (19.2%)
50 or >	-	-	1	2	-	-	-	2	-	5 (02.1%)
Total	12	13	182	3	9	3	11	5	2	240 (100%)

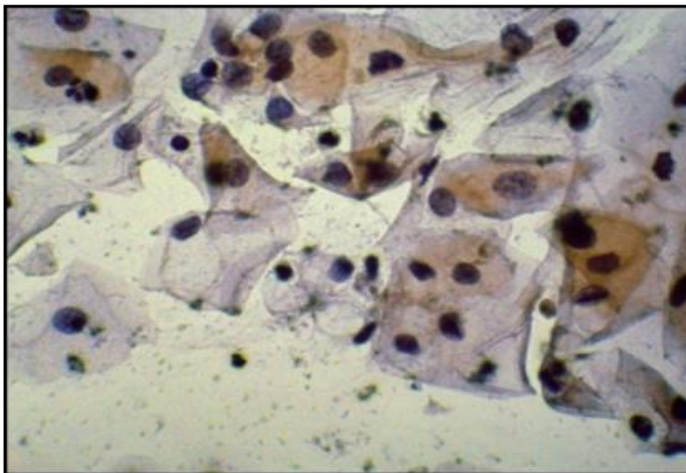
The cases which were diagnosed on smear as Epithelial Cell Abnormalities were followed and colposcopy biopsy was done and the final histopathology diagnosis are done as depicted in Table 4.

**Table 4:** Colposcopy Biopsy for conformation

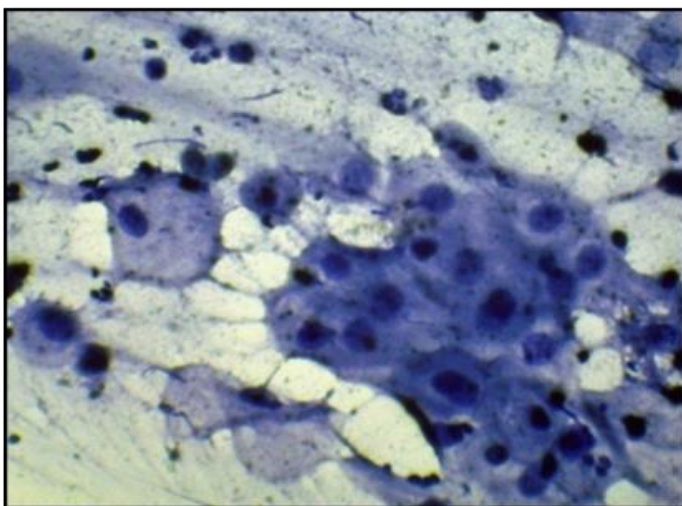
PAP report	No. case	Biopsy	Not willing	Histopathology Diagnosis
ASCUS	9	7	2	Chronic Non-Specific Cervicitis (7 cases)
ASC - H	3	3	-	Severe Dysplasia (2 cases) Mod. differentiated focal keratinizing SCC (1 case)
LSIL	11	6	5	Mild dysplasia CIN I (6 cases)
HSIL	5	4	1	Severe dysplasia CIN III (3 cases) Squamous Cell Carcinoma (1 case)



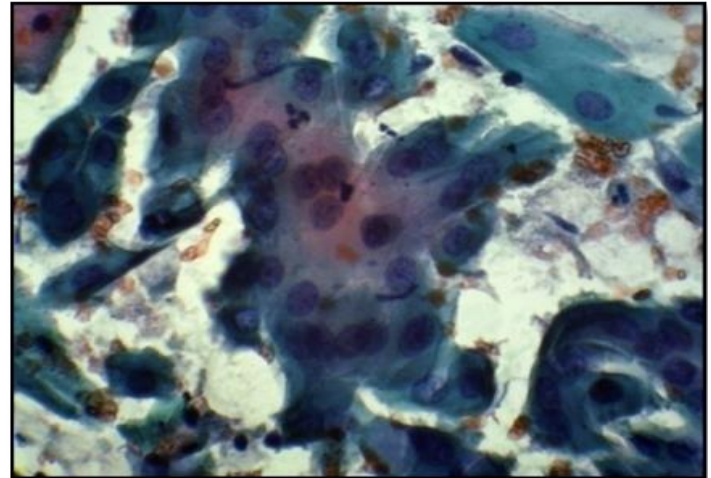
**Fig. 2:** Inflammatory smear Smear shows Superficial & intermediate cells with inflammatory cells dispersed in background



**Fig. 3:** Atypical Squamous cells of undeterminate significance (ASCUS) show increased nucleus size with minimal hyperchromasia & nuclear irregularity



**Fig. 4:** Low grade squamous intraepithelial lesion (LSIL): Smear shows increase innuclear size with variable hyperchromasia and slightly irregular nuclear membrane



**Fig. 5:** High grade squamous intraepithelial lesion (HSIL): smear shows variation and cell size with hyperchromatic nucleus and increased nucleocytoplasmic ratio

**DISCUSSION**

The Papanicolaou (Pap) test is a screening test performed using cells from the uterine cervix. The test is simple, quick and painless. By cervical screening, incidence and prevalence of the cervical cancer and related mortality and morbidity can be reduced [7].

The incidence of cervical cancer has been reduced to more than 50% in developed countries in past 30 yrs because of wide spread screening, where as in developing countries, there was high burden especially in underserved population due to lack of screening and health care infrastructure [13].

The results of the present study and their correlation with other workers are discussed below in following Table 5 and Table 6.

**Table 5:** Comparison of age wise distribution with other studies

Age	Sharma <i>et al.</i> [14] Delhi	Chankapa <i>et al.</i> [15] Sikkim	Bhavika <i>et al.</i> [13] Gujarat	Bajpai [16] UP	Present study Kaladgi
20–29	190	293	67	111	79
30–39	24	327	167	103	110
40–49	–	241	140		46
50–59	–	107	60	42	
60 or >	–	–	66	44	5
Total	214	968	500	300	240

**Table 6:** Comparison of findings of Pap smear cytology with other studies

Name of worker	No. cases	Unsatisfactory (%)	Normal (%)	Atrophic changes (%)	Inflammatory Lesion (%)	SIL (%)
Sharma <i>et al.</i> <sup>[14]</sup>	214	5.6	15.9	7.9	64.5	6.07
Chankapa <i>et al.</i> <sup>[15]</sup>	968	–	95.15	–	4.02	0.9
Vaghela <i>et al.</i> <sup>[13]</sup>	400	13.25	1.50	3	53	20.5
Bajpai <i>et al.</i> <sup>[16]</sup>	300	11.33	33.33	9	41.66	4.40
Present study	240	5	5.4	1.25	75.83	11.7

Above table shows that higher incidence of inflammatory smears in present study with lower incidence of diagnosed as normal smears. Incidence of atrophic changes was lower in present study compare to other study. Incidence of inflammatory lesions and SIL were similar to other studies.

**Table 7:** Age wise distribution of Squamous Intraepithelial Lesion (SIL)

Age	Sharma <i>et al.</i> <sup>[14]</sup> No (%)	Chankapa <i>et al.</i> <sup>[15]</sup> No (%)	Vaghela <i>et al.</i> <sup>[13]</sup> No (%)	Bajpai <i>et al.</i> <sup>[16]</sup> No (%)	Present study No (%)
20–29	5.34 (190)	0.21 (293)	1.9 (67)	0.33 (111)	1.25 (79)
30–39	0.73 (24)	0.41 (327)	4.7 (167)	2.67 (103)	5 (110)
40–49	–	0.1 (241)	6.7 (140)	–	4.58 (46)
50–59	–	0.2 (107)	3 (60)	0.7 (42)	0.83 (5)
60 or >	–	–	4.2 (66)	0.7 (44)	–
Total	6.07 (214)	0.9 (968)	20.5 (500)	4.40 (300)	11.7 (240)

The incidence of SIL is found to be similar to other studies. In present and other studies shows the abnormal epithelial lesions were increasing in the age group of 40–50 years.

## CONCLUSIONS

Cervical cancer is the most common malignancy in women in developing country like India. Pap test is a cheap, safe and practical diagnostic tool for early detection of cervical lesions in high risk group, so it should be established routine screening procedure. This study emphasized the importance of Pap smears for early detection of premalignant and malignant lesion of cervix and analysis of cervical burden in remote areas of Bagalkot, India. The Colposcopy biopsy is also found to be helpful for detecting cervical lesions in high risk group.

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