



## Papanicolaou (Pap) Smear Screening in A Tertiary Health Care Centre In Central India- A Study of One Year.

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### ABSTRACT

**Background:** In India, cancer cervix is the most common cancer among females. Papanicolaou cytological (Pap) test helps in detecting the early epithelial abnormalities in cervical cells

**Material and Methods:** Pap smears of female (n=80) who underwent voluntary Pap test as part of a screening programme, from January to December 2014 were evaluated. Pap smears were evaluated by light microscopy. The 2001 Bethesda system for reporting cervical cytology was used in evaluating the pap smears.

**Results:** Their mean age was  $41.3 \pm 5.6$  years. Epithelial cell abnormality was noted in the Pap smear in 5 (6.3%) cases.

**Conclusion:** Our observations provide supportive evidence for using Pap test as a tool for screening for cervical cancer. There is a need for enhancing the awareness among lay public regarding the utility of this test so that more women will avail this test and precancerous changes in cervix can be detected before they progress to frank malignancy.

**KEYWORDS :** Cervical cancer, Papanicolaou smear, Cytology.

### INTRODUCTION

Cervical cancer is the most common form of cancer among Indian females. Usually 70% or more of these cases present in stage 3 or higher at the time of diagnosis.(1) It is estimated that in India 126,000 new cases of cervical cancer occur annually.(2) Unlike most other malignancies, cancer of cervix is readily preventable as it is easy to detect and treat its precursor lesions.(3) Papanicolaou cytological (Pap) test, since its introduction, has been a boon, as dramatic reduction has been observed in the incidence and mortality of invasive cervical cancer worldwide.(4) This is because the Pap test detects cervical epithelial cell abnormalities which represent a spectrum of intraepithelial lesions, from mild-to-severe dysplasia to invasive cancer(5) and facilitates early diagnosis. But greater awareness among clinicians regarding this test is required to carry out screening for cancer of cervix among women in both rural and urban areas in India.

### Material and method

In this study we have conducted Pap test in female at our tertiary care health centre who voluntarily consented to undergo this test. During the period January to december 2014 all female came for pap smear test in obs and gynae department of our hospital 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. The Pap smear was collected with the help of a wooden spatula. For each subject, an average of two smears were collected. The smear was immediately fixed in isopropyl alcohol. In the laboratory the Pap staining was done and smears were evaluated by light microscopy using the 2001 Bethesda System for reporting cervical cytological diagnoses (6). 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 lowgrade 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. Those with LSIL and HSIL were counselled and were advised to undergo colposcopic examination and biopsy for histopathological examination.

### RESULTS

Their mean age was  $41.3 \pm 5.6$  years (range 20-55 years). Majority of the cases with an abnormal Pap smear (LSIL or HSIL), belonged

to the fourth decade. Among those who underwent Pap testing, 59 (73.8%) cases were asymptomatic and the remaining cases (n=21) were symptomatic. The Pap smears were adequate and there was no other non-neoplastic or glandular cell abnormality noted apart from epithelial cell abnormality in 5 (6.3%) of the cases. All other smears were either within normal limit or with mild acute inflammatory cell infiltration. No organism could be identified in any of them apart from Doderlein bacilli evident in a few of them. Among the subjects with Pap smear abnormality, 3 were asymptomatic and 2 were symptomatic (Table 1). Among subjects aged 40 years and below, none had positive result irrespective of symptom status. There were 51 (63.8%) subjects who belonged to the age group between 41-50 years. Among them, 35 (68.6%) were asymptomatic and 16 (31.3%) were symptomatic. Pap smear was positive in this age group only. Only 4 staff members were aged above 50 years. The most frequent epithelial cell abnormality cytologically was HSIL (3) closely followed by LSIL (2) (Figures 1 and 2). Only 3 cases underwent cervical biopsy which did not reveal any dysplastic changes. So, they were advised regular follow up and repeat Pap smear after six months.

**Table 1: Comparison of yield of positive and negative Pap smears across various age groups**

Age (Years)	Symptomatic Status	Pap Smear		Total
		negative	positive	
<40	Asymptomatic	20	00	20
	Symptomatic	05	00	05
41-50	Asymptomatic	32	03	35
	Symptomatic	14	02	16
>50	Asymptomatic	04	00	04
	Symptomatic	00	00	00
	total	75	05	80

### DISCUSSION

In India incidence rates of cancer of the cervix is very high especially in rural areas.(1) The age- standardized incidence rates have ranged from 16-55 per 100,000 women in different regions of India.(2) Although control of cervical cancer by early detection and treatment remains a priority of the National Cancer Control Programme of India, organized cytology screening programmes are definitely lacking. One possible reason is the technical and financial constraints to organize cytology screening.(2) Introduction of conventional Pap screening services reduces cervical cancer rates by 60% to 90% within 3 years of implementation; and these reductions in incidence and mortality are consistent.(7) Therefore the Pap test is designated as the "single best cancer screening procedure".(6) The past failures of cervical screening in developing countries are attributable to failures in program quality rather than to technological limitations of the screening test.(7) In

fact successful implementation of Pap test screening in southern Vietnam, which recorded reductions in cervical cancer incidence from 29.2 per 100,000 in 1998 to 16 per 100,000 in 2003 reiterates these views. A study from neighbouring Bangladesh (5) showed a higher prevalence (8.2%) of epithelial cell abnormality in the Pap smear in contrast to other studies. (5,9,10) The authors of this study attributed this high prevalence to the fact that the patients included in the study visited the tertiary care hospital for specific gynaecological complaints. In a study (9) conducted at a tertiary care hospital in Kuwait, prevalence of cervical cell abnormality in Pap smear was found to be 4.3%. Another study (11) from Saudi Arabia reported a prevalence of 7.9%. In our study, 6.3% had cervical cell abnormality in Pap smear. A recent study (12) conducted in Ningen Dock, Japan aimed to determine the gynaecological status of asymptomatic women who attended the hospital for health check-up, showed a low prevalence cervical cell abnormalities of 1.2%. The explanation behind this result is mostly because of their cultural traditions and great concern regarding their health check-ups and less likelihood of having multiple sexual partners. In a study (13) conducted at Lucknow, India, incidence of SIL was found to be 5.9% while cervical malignancy was seen in 0.6% of cases. The study (13) highlighted the immense utility of cytological screening in minimizing the incidence of carcinoma cervix in the segment of the urban population screened, as the incidence dropped down to 0.5% in the second half from 1.1% noticed in the first half of the screening period. Our study shows a higher incidence and also indicates the need and importance of cervical screening. It also directs and gives us the scope to conduct further studies regarding the early detection of cervical cancer.

In another study (14) conducted in primary health centre East Sikkim, incidence was found to be less than 1%. This was a population based cross-sectional study in cervical cancer screening. Our study was conducted in educated urban population, 6.3% had abnormal cervical smears. This also indicates the need for screening awareness to disseminate to the lay population at large.

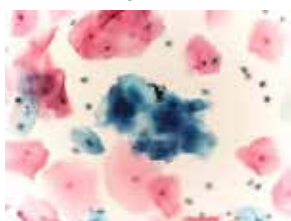
### Conclusion

The Pap smear as a screening tool has great importance and is widely used routine test which enables proper management at an early stage by detecting the early cervical changes. Though cervical cancer is said to be more common in rural population, we have noted a fairly high incidence of cervical epithelial abnormality in an educated population living in an urban area. So, we conclude that regular counselling and screening should be conducted among vulnerable age groups. Better awareness also should be created with the co-operation of media, non-government organizations, government and above all with the active participation of the people concerned to treat this cancer which can be detected at an early stage.

**Figure 1: Photomicrograph showing low-grade squamous intraepithelial lesion (Papanicolaou, 400)**



**Figure 2: Photomicrograph showing high-grade squamous intraepithelial lesion (Papanicolaou, 400)**



### REFERENCES

1. Nandakumar A, Anantha N, Venugopal TC. Incidence, mortality and survival in cancer of the cervix in Bangalore, India. *Br J Cancer* 1995;71:1348-52.
2. Sankaranarayanan R, Nene BM, Dinshaw K, Rajkumar R, Shastri S, Wesley R, et al. Early detection of cervical cancer with visual inspection methods: a summary of completed and ongoing studies in India. *Salud Publica Mex* 2003;45:399-407.
3. Bal MS, Goyal R, Suri AK, Mohi MK. Detection of abnormal cervical cytology in Papanicolaou smears. *J Cytol* 2012;29:45-7.
4. Afrakteh M, Khodakarami N, Moradi A, Alavi E, Shirazi FH. A study of 13315 Papanicolaou smear diagnoses in Sohada hospital. *J Fam Reprod Health* 2007;1:75-9.
5. Banik U, Bhattacharjee P, Ahamed SU, Rahman Z. Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation. *Cytojournal* 2011;8:8.
6. Solomon D, Davey D, Kurman R, Moriarty A, O'Connor D, Prey M, et al. The 2001 Bethesda System: terminology for reporting results of cervical cytology. *JAMA* 2002;287:2114-9.
7. Suba EJ, Raab SS. Viet/American Cervical Cancer Prevention Project. Papanicolaou screening in developing countries: an idea whose time has come. *Am J Clin Pathol* 2004;121:315-20.
8. Suba EJ, Raab SS. Lessons learned from successful Papanicolaou cytology cervical cancer prevention in the Socialist Republic of Vietnam. *Diagn Cytopathol* 2012;40:355-66.
9. Kapila K, George SS, Al-Shaheen A, Al-Ottibi MS, Pathan SK, Sheikh ZA, et al. Changing spectrum of squamous cell abnormalities observed on Papanicolaou smears in Mubarak Al-Kabeer Hospital, Kuwait, over a 13-year period. *Med Princ Pract* 2006;15:253-9.
10. Abdullah LS. Pattern of abnormal Pap smears in developing countries: a report from a large referral hospital in Saudi Arabia using the revised 2001 Bethesda System. *Ann Saudi Med* 2007;27:268-72.
11. Elhakeem HA, Al-Ghamdi AS, Al-Maghrabi JA. Cytopathological pattern of cervical Pap smear according to the Bethesda system in southwestern Saudi Arabia. *Saudi Med J* 2005;26:588-92.
12. Imai A, Matsunami K, Takagi H, Ichigo S. Trend of Incidence in Positive Cervical Smears from 2002 - 2010 in Ningen Dock, a Special Japanese Health Checkup System. *Ningen Dock* 2012;26:923-6.
13. Misra JS, Singh U. Results of long-term hospital based cytological screening in asymptomatic women. *Diagn Cytopathol* 2006;34:184-7.
14. Chankapa YD, Pal R, Tsering D. Correlates of cervical cancer screening among underserved women. *Indian J Cancer* 2011;48:40-6 centre, East Sikkim, incidence was found to be