

## Study on Cytological Pattern of Pap Smear as Screening

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### Abstract

Cervical cancer is one of the leading cancers in women with an estimated 500,000 new cases every year of which 80% occur in developing countries. Early detection and appropriate timely treatment of its preinvasive lesions reduces the mortality. The Papanicolaou test introduced by George Papanicolaou as cervical pathology screening test in 1941 was performed using cells from transformation zone helps in early detection. Pap test can detect 75% endometrial cancers and 90% cervical cancers. *Aim:* To study the cytological pattern of cervic smear in patients attending gynaecology outpatient department, Govt Rajaji Hospital, Madurai. *Materials and Methods:* Among 10143 cases attended OPD of Govt Rajaji Hospital (Gynaec) Madurai between the periods of June 2016 to December 2016. 528 patients with complaints of white discharge pervaginum subjected to Pap smear screening. *Results:* Among 528 Pap smear 198 showed normal study, 262 were inflammatory smear, 63 had inadequate sample material, 1 atrophic smear, 1 dysplasia, 1 metaplasia. *Conclusion:* Pap smear is highly sensitive in detecting abnormal cervical smear according to our study.

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### Introduction

Cervical cancer is one of the leading cancers in women with an estimated 500,000 new cases every year of which 80% occur in developing countries. Early detection and appropriate timely treatment of its preinvasive lesions reduces the mortality. The Papanicolaou test introduced by George Papanicolaou as cervical pathology screening test in 1941 was performed using cells from transformation zone helps in early detection. Pap test can detect 75% endometrial cancers and 90% cervical cancers.

### Aim

The objective of this study was to detect the pattern of cervical cytological changes of study population by using conventional Pap smear for the screening of inflammatory, pre malignant and malignant lesions of cervix.

### Materials and Methods

This retrospective study was conducted on 528 patients who attended gynaecology outpatient department at Government Rajaji Hospital, Madurai during the period June 2016 to December 2016. Among 10143 patients attended Gynaec OPD Smear were taken from 528 patients who presented with complaints of white discharge per vaginam. The smears were obtained with Ayres spatula from the squamo columnar junction. The cellular material obtained on the spatula was quickly smeared on the glass slide. The glass slides were then fixed immediately by 95% ethyl alcohol and then

stained with papanicolaou stain. Slides were examined under light microscope and were reported by pathologists according to the 2001 Bethesda system.

**Results**

Among the 528 cases screened by pap smear, 198(37.5%) showed normal smear, 262 cases (49.6%) showed inflammatory smear, 63(11.93%) were

inadequate sample, 3 cases (0.56%) atrophic smear and dysplasia One case (0.18%), metaplasia one case (0.18%).

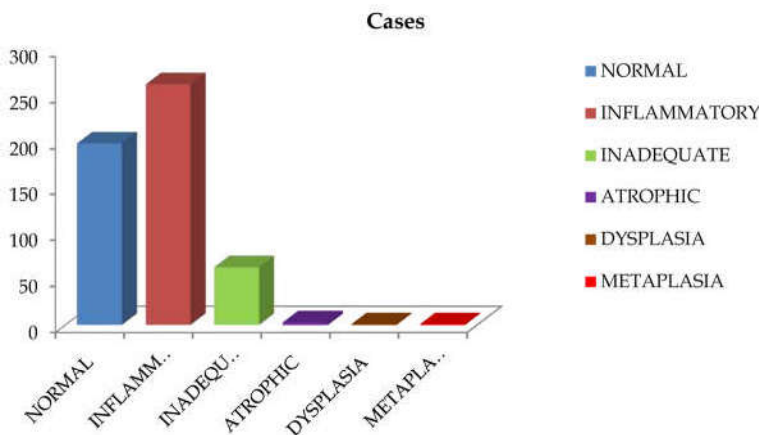
In our study 37.5% showed normal smear. Afrakhteh. M et al (1) study showed among 13315 Pap smear result 45.55% cases had diagnosis of negative smear. 49.62% cases showed inflammatory smear in our study; Manjit et al (2) study showed 74.3% inflammatory smear. Our study showed 0.18% abnormal smear and Afrakhteh. M et al [1] study showed 1.18% abnormal smear.

**Table 1:** Cytological pattern of Pap smear

Report	No of cases	Percentage (%)
Normal smear	198	37.5
Inflammatory smear	262	49.6
Inadequate sample	63	11.93
Atrophic smear	3	0.56
Dysplasia	1	0.18
Metaplasia	1	0.18

**Table 2:** Age distribution

Age	Number of Cases	Percentage (%)
20-30yrs	172	32.57
31-40yrs	208	39.39
41-50 yrs	102	19.31
51-60 yrs	32	6.06
61-70 yrs	13	2.46
71-80 yrs	1	0.18



**Fig. 1:** Distribution of Pap smear reports

**Table 3:**

20-30 years	Normal smear	120	69.76%
	Inflammatory smear	31	18.02%
	Inadequate smear	21	12.20%

**Table 4:**

31-40 years	Normal smear	25	12.01%
	Inflammatory smear	166	79.80%
	Inadequate smear	17	8.17%

**Table 5:**

41-50 years	Normal smear	41	40.19%
	Inflammatory smear	49	48.03%
	Inadequate smear	11	10.78%
	Dysplasia	1	0.98%

**Table 6:**

51-60 years	Normal smear	12	37.5%
	Inflammatory smear	9	28.12%
	Inadequate smear	9	28.12%
	Atrophic smear	1	3.12%
	Metaplasia	1	3.12%

**Table 7:**

61-70 years	Atrophic smear	1	7.14%
	Inflammatory smear	7	50.00%
71-80 years	Inadequate smear	5	35.71%
	Atrophic smear	1	7.14%

With 528 cases of Pap smear, 208 cases (39.39%) belong to 31-40 years correlating with Manjit et al [2] study where 45.3% were in the age group of 31-40 years.

## Discussion

Cervical cytology is currently widely used as the most effective cancer screening modality. Pap smear is accepted as a screening tool for detecting precancerous changes in cervix. It is simple, safe and non-invasive technique. The smear taken from cervix may contain cells from squamous epithelium of cervix, endocervical canal, endometrial cells and transformation zone. Cervical cytology by conventional Pap smear introduced by papanicolaou. The same method of collection, spreading, fixation and examination under microscope used as standard procedure. Sensitivity of conventional Pap smear for detection of malignancies is 50%; sensitivity is less due to error in taking samples.

White discharge was the most common presenting complaint in our study. Other studies also reported similar findings. Among the 528 cases screened by pap smear, 198 (37.5%) showed normal smear, 262 cases (49.6%) showed inflammatory smear, 63 (11.93%) were inadequate sample, 3 cases (0.56%) atrophic smear and dysplasia One case (0.18%), metaplasia(0.18%). Dr. Samta Bali Rathore et al [3] study showed total of 500 pap smear were examined and maximum number of patient was in the age group of 31-40 yrs (43.60%) of which 74% were inflammatory smear. Cervical cytology study in Odissa by Gangotremohanty et al [4] showed

maximum number of patients 43% in age group of 31-40 yrs. The most common complaint was discharge per vaginum present in 69.5% case and 57.5% cases show inflammatory smear. In our study 49.6% showed inflammatory smear. 69.76% of cases in our study in 20-30 yrs show normal smear. 79.8% of cases in 31-40yrs had inflammatory smear. In 41-50 yrs age group about 40% of cases show normal smear, 48% had inflammatory smear. But in age group of 51-60 yrs, 28% of cases showed inadequate sample may be due to receding of squamocolumnar junction. With increasing age group inadequate sample smear is more and so with endocervical brush smear to be taken. When compared to age groups, 31-40 yrs inadequate sample is 8.17%, 41-50 yrs 10.78%, 51-60yrs 28.12%, and 61-70 yrs 35.71%.

Some technical standards to be followed such as presence of water in smear destroy cellular details, so the slide, spatula and cervical brush used must be absolutely dry. Slides must be fixed immediately with air drying cells lose their differential staining characteristics. Smear must be made thin and uniform, so precautions must be taken to avoid inadequate sample.

## Conclusion

Our study elucidates the importance of Papanicolaou cervical screening test. It is highly sensitive in detecting abnormal cervical smear according to our study. To overcome the limitation of conventional Pap smear, liquid based thin layer technology may be followed.

## References

1. A study of 13315 papanicolaou smear diagnosis in sohada hospital Afrakhteh m khodakarami N; Moradi. A.J.Farm.Reproductive health 2007;1:75-9.
  2. Detection of abnormal cervical cytology in pap smear. Manjit Singh Bal, Rishnu Goyal and ManjitkaurMohi J.Cytology. 2012 Jan-March;29(1):45-47.
  3. Study of cervical pap smear in a tertiary hospital Dr.Samta Bali Rathore, Dr. AnjanaAtal IJSR 2016 May;5(5):2071-73.
  4. Abnormal cervical cytology detection a study in Odissa, GangotreeMohanty. Dr. S.N. Gosh IJSR Sep 2014;3(9):580-82.
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