Study of cervical PAP smear at medical college hospital in a rural setup

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Abstract

Background: Cervical carcinoma was once the most frequent form of cancer in women around the world. Since the introduction of the papanicolaou(pap) smear 50yrs ago, the incidence of cancer cervix has plummeted. It remains the most successful cancer screening test ever developed. In populations that are screened regularly, cancer cervix mortality is reduced by as much as 99%.

Objectives: This is a prospective study aimed to screen all OP patients with cervical smears from January 2015 to December 2016 at Annapoorana Medical College and Hospital, situated in a rural area at Salem. The main purpose was to study the incidence of pre-malignant and malignant lesions in small section of rural population in and around Annapoorana Medical College and Hospital. Those cases diagnosed clinically as carcinoma cervix were not included in this study.

Methods: Pap smear cytology reports and relevant clinical data noted in a structured proforma. Smears were reported as per the 2001 Bethesda system.

Results: A total of 500 pap smears were examined. There were 7 unsatisfactory or inadequate samples. NILM, Negative for intraepithelial lesion or malignancy, 458 of which 231 showed normal cytological findings and 227 showed non-neoplastic changes. Out of the total 42 abnormal pap smears, only 24 cases reported to have epithelial cell abnormality. The 24 abnormal cases consist of 9 with ASCUS, 11 LSIL, 3 HSIL, 1 invasive squamous cell carcinoma.

Conclusion: Useful in diagnosing malignant and pre-malignant lesions of Cervix. The epithelial cell abnormality rate is 4.8% in our study, comparable to other studies. In developing nations like India with poor per capita incomes, it is a major challenge to devise screening programme which is cheap and widely applicable. Medical and paramedical staff can easily be trained to perform this simple test which reduces the incidence and mortality of cancer cervix.

Keywords: Pap smear, Cervical cytology, Screening, Cancer cervix.

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Introduction

Cancer cervix is the commonest malignancy among women in developing countries. In developing countries including India, it is the leading cause of morbidity and mortality. It is readily preventable and can be diagnosed at the pre-invasive stage with adequate and repetitive cytological screening with papanicolaou smears.

The overall sensitivity of pap smear in detection of high grade squamous intraepithelial lesion [HSIL] is 70 – 80%. If pap screening is associated with HPV – DNA testing then we can increase the sensitivity.

Many of the cases of Cancer Cervix now occur in women who have not had regular screening over the same period, the incidence of precursor CIN has increased (this being in part attributable to better case finding) to its present level of more than 50,000 cases annually. This growing divergence is a testament to detection of precursor lesions by the pap smear at an early stage, permitting discovery of these lesions when curative treatment is possible.

The follow up of women has revealed that pre cancerous epithelial changes may precede the development of overt Cancer by many years or in some cases even decades.

The relative proportion of adenocarcinoma has been increasing in recent decades, glandular lesions are not detected well by pap smear and other screening techniques. Invasive squamous carcinoma is becoming less frequent.

Materials and Methods

This prospective study was conducted on 500 patients who attended Annapoorana Medical College and Hospital from January 2015 to December 2016.

Routine cervical smears were collected from women attending gynaecology OP in the age range of 20-70 yrs. Patients included those who had some complaints like menstrual problems, leucorrhoea, pain abdomen as well as patients who had come for routine pap screening. Of the total 500 patients, 350 patients had at least one complaint regarding reproductive tract morbidity. The findings of history, clinical examination and pap smear reports were noted in a structured proforma. The data was analysed by calculating percentages.

Smears were obtained with the help of Ayer's spatula. Cellular material obtained was smeared on a clean glass slide. Fixed by immersing them in to coplin jar containing 95% ethyl alcohol for 30 minutes and then stained with papanicolaou stain. After mounting the slides with DPX (Distrene dibutyl phthalate xylene), examined by cyto-pathologist under light microscope and were reported according to 2001 Bethesda system.

Results

Table 1: Number of cases in different categories – PAP Smear

Cytology		No. of patients	% of total
I. NILM		458	91.60%
	1.Normal	231	46.20%
	2.Non-neoplastic changes		
	a)Non-specific	218	43.60%
	b)Candida	6	1.20%
	c)Trichomonas	3	0.60%
II.ASCUS		9	1.80%
III.SIL	1.LSIL	11	2.20%
	2.HSIL	3	0.60%
IV.Carcinoma	SCC	1	0.20%
V.Inadequate		7	1.40%
VI.Atrophy		11	2.2%
Total		500	

NILM - Negative for intraepithelial lesion or malignancy; ASCUS – Atypical squamous cell of undetermined significance; SIL – Squamous intraepithelial lesion; LSIL – Low grade squamous intraepithelial lesion; HSIL – High grade squamous intraepithelial lesion; SCC – Squamous cell carcinoma.

Table 1: Shows the distribution of cases under various diagnostic categories of pap smears. Out of 227 cases of non-neoplastic changes smears, 218(43.60%) showed non specific inflammation, 6(1.20%) showed features of candida infection and 3(0.60%) cases had evidence of trichomonas.

Table 2: Relation of age with different pathodiagnosis of cervix

S. No	Patho diagnosis			Age (yrs)				
		Total	%	20-30	31-40	41-50	51-60	61-70
1.	Normal	231	46.20%	75	80	64	9	4
2.	Non-neoplastic changes	227	45.40%	59	101	55	12	-
3.	Atrophy	11	2.20%	Nil	Nil	4	5	2
4.	ASCUS	9	1.80%	1	2	5	1	-
5.	LSIL	11	2.20%	3	3	2	2	1
6.	HSIL	3	0.60%			2		1
7.	SCC	1	0.20%				1	

Table 2: Shows the relation of age with various cytodiagnosis of cervix. Of the total 500 cases, 231(46.20%) cases showed normal study; 227(45.40%) showed non-neoplastic changes picture; 7 cases it was inadequate sample; 11cases showed features of atrophy; 24 cases shows epithelial cell abnormality. The diagnosis of 24 abnormal cases showed 9 cases of ASCUS, 11 cases of LSIL, 3 cases of HSIL, 1 case of squamous cell carcinoma.

Table 3: Comparative Study

Cytology	Annapoorana Medical College		D.Y. Patil Medical College		Govt. Medical College, Surat, Gujarat	
I.ASCUS	9	1.80%	13	2.32%	20	4.00%
II.LSIL	11	2.20%	11	1.96%	1	0.20%
III.HSIL	3	0.60%	2	0.36%	1	0.20%
IV.SCC	1	0.20%	3	0.54%	4	0.80%

Table 3: In our study, SCC incidence worked out to 0.2% whereas that in D.Y. Patil College it is 0.54% and in GOVT. College, Surat, it is 0.8%.

Table 4: Comparative Study

Cytology	Annapoorana Medical College		Govt. Medical College, Surat, Gujarat	
	Maximum cases	Age group	Maximum cases	Age group
I.ASCUS	5	41-50	16	41-50
II.LSIL	3	31-40	1	41-50
	3	20-30		
III.HSIL	2	41-50	1	31-40
IV.SCC	1	51-60	3	31-40
			3	51-78

Table 4: Shows the maximum number of cases in each cytological type and the age group. The ASCUS cases seen in Gujarat study is much higher compared to our study.

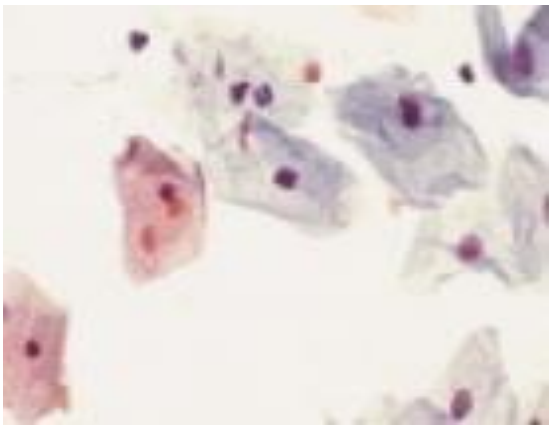

Fig. 1: Photomicrograph showing normal pap smear

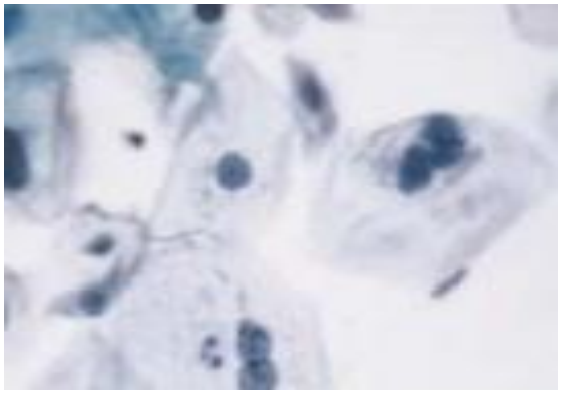

Fig. 2: Photomicrograph showing LSIL

Discussion

Our study brings out the importance of pap cervical screening test. This study shows 458; 91% of cases in NILM. Out of that 218, 43.6% fall under non-specific inflammation which is comparable to studies done in other regions. The epithelial cell abnormality rate is 4.8% in our study, again comparable to other studies. Ratio of non neo-plastic changes and other lesions to pre malignant & malignant ones was 458:24 [91.6%:4.8%]. Ascus was found to be highest in age group 41-50.

There are various screening tests for cervical cancer like pap smear, liquid pap cytology, visual inspection of cervix after lugols iodine and acetic acid application. Out of all these, exfoliative cytology is cheap and cost effective method. If pap screening is associated with HPV-DNA testing then we can increase the sensitivity.

With the advent of pap smear, increasing proportion of cancer cervix are diagnosed early in their course. The vast majority of cervical neoplasms are diagnosed in pre-invasive phase and appear as white areas on colposcopic examination after application of dilute acetic acid. More advanced cases of cancer cervix are invariably seen in women who either have never had pap smear or have waited many years since the prior smear. Such tumors may be symptomatic, called to attention by unexpected vaginal bleeding, leucorrhoea, dyspareunia.

Clinical problems presented by the study group included pain abdomen due to fibroid, menorrhagia (DUB), some presented for prolapse uterus, low back pain & leucorrhoea.

Socio demographic characteristics – 77.4% of women fell in reproductive age (20-40). 80% of women were in BPL group.41.9% women had > 3 children.

Inflammations of cervix are extremely common and are associated with mucopurulent to purulent vaginal discharge. Cytological examination of the discharge reveals white cells and non-neoplastic atypia of shed epithelial cells as well as possible micro-organisms.

Conclusion

In rural and urban settings, this simple test could be offered to vast populations for diagnosing pre-malignant condition of cervix. This has and will in future continue to aid us with early diagnosis of cervical cancers and bring down the burden of mortality and morbidity associated with cervical cancers.

Our study reiterates the need for regular pap smear screening to cervix. Pre malignant cases can be detected and counselled to prevent cancer cervix from developing.

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