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Methods: This is a retrospective analytical study of 79 women of reproductive age group done at CAMA AND ALBLESS HOSPITALS. The cervical smear was taken from all patients using the Ayre's spatula by scrape cytology method. Then we did Colposcopy for patients with highly suspicious malignant and unhealthy cervix and with inflammatory pap smear not relieved on antibiotics. Finally, cervix biopsy was done for cases for suspected malignancy on the Pap smear.

Results: Inflammatory smears were seen in 35.44 %, ASCUS in 5.06%, LSIL in 3.7% and invasive carcinoma in 5.06% patients. The patients having white discharge PV or menorrhagia had ASCUS and AGCUS on Pap smear which had squamous metaplasia (3.3%), HPV infection (1.6%) and invasive cancer. HSIL and Invasive carcinoma showed invasive carcinoma.

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Conclusions: The Pap smear is a simple, safe, practical and cost-effective method for early detection of cervical cancer and its precursors. In low resource countries like India, it is the most logical screening modality although it has a very low sensitivity; detection rates could be further improved using liquid-based cytology and the use of endocervical cytobrush.

I. Introduction

Cervical cancer continues to be a worldwide problem. In developing countries, with limited health care facilities, cervical carcinoma is the second most common cause of cancer death in women. Invasive cancer of cervix is considered a preventable disease because it has a prolong preinvasive state and with the help of cervical cytological screening programmes and treatment of preinvasive lesions, we can reduce the incidence of cervical cancer. It is anticipated that in developing countries the percentage of women who never had PAP test; leading to cervical cancer is around 60%. (1). It accounts for 80% of deaths in a developing country like India. (2)

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However worldwide the incidence of cervical cancer is decreasing and it is being diagnosed at an earlier stage.

Epidemiological data indicate that the incidence of cervical cancer will continue to be high due to poor hygiene, early marriage, multiparity, lack of screening facility. In order to control the disease, cytological screening should be undertaken routinely and intensively (3). The dramatic reduction in the incidence of cervical cancer in developed countries is because of the widespread use of cytological screening test. (4) Various screening methods are available like cytology by Pap smear, visual inspection of the cervix with acetic acid and/or Lugol's iodine, HPV- DNA Test, Liquid-based cytology, etc.

Pap smear is an effective method of cervical cancer screening with a low sensitivity rate. It is the laboratory method to examine the exfoliated or scraped cells to detect dysplasia. It is a simple routine outpatient procedure which is less expensive and popular screening modalities at various centers. PAP smear and gynecological examination should be performed for any unexplained discharge or irregular bleeding as they may be signs of cervical and other genital malignancies as there have been cases who had bleeding PV and were denied Pap smear many times only to present with advanced cervical cancer.

In 2012, all the three-organization the American College of Obstetricians and Gynecologists (ACOG), American Cancer Society (ACS) and U.S. Preventive Services Task Force (USPSTF) recommended that: (5)

- Screening by Papanicolaou test (pap) should not be used for women aged less than 21 years, regardless of initiation of sexual activity.
- A screening interval of three years should be maintained by pap smear for women aged 21-30 years. An HPV test is not essential.
- Women aged 30-65 years should have a Pap test and an HPV test (co-testing) every five years or is even acceptable to have a Pap test alone every three years.

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The cytology-based screening programmes have been successful in reducing the incidence of cancer cervix by 80 % and deaths due to it by 70%.

II. Methods

We did a retrospective analytical study of 79 women in reproductive age group women over one year at Cama and Albless hospitals, Mumbai.

We established the correlation of clinical symptomatology and Pap smear findings and colposcopic findings. The patients in the reproductive age group that is 18-45 were selected. We included patients with chief complaints of pain, menstrual complaints, patients who had come for follow up and patients who had come for infertility consultation. A detailed history taken and per speculum examination of the patient was done. Patients who came to the Gynaecology OPD the procedure was explained to the patient in detail and examination done in dorsal position after emptying the bladder. Per speculum examination was done without using lubricants. Naked eye examination of the cervix was done to evaluate its color, shape, size, the presence of any lesions, discharge. The cervical smear was then taken using the scrape technique using the Ayre's spatula.

The longer end of the spatula was inserted into the external Os and rotated through 360° maintaining firm pressure so as to scrape the squamocolumnar epithelial junction throughout its circumference. Care was taken to include all abnormal looking areas. Then we withdraw the spatula without touching the vaginal walls to avoid contamination with cells from the lower genital tract. The smear was made by spreading the scraped material evenly, with a circular motion on a glass slide having the patients' identity labeled then we fixed it in a fixative solution, which contains 95% alcohol and ether for 15-30 minutes and then sent to the cytopathology laboratory. The smears were stained according to the modification of Papanicolaou (1942). (6)

The patients who had completed a course of antibiotics, but continued to have symptoms, patients who had high suspiciousness of cervical cancer underwent colposcopy. A colposcopic examination in which whole of transformation zone visualized completely we labeled to be a satisfactory colposcopy. If a squamo-columnar junction is inside the endocervical canal and complete transformation zone is not visible it is an unsatisfactory colposcopy.

We then correlated the findings of symptoms of the patients with PAP and colposcopic findings.

III. Results

We did highest pap screening in the age group of 40-45 years followed by 35-39 years. As the parity increases we found a higher incidence of pap and colposcopy.

Table 1: Age distribution of Pap smear

Age	No of cases studied	Percentage
21-24yrs	3	3.8
25-29 yrs	11	13.9
30-34 yrs	15	18.9
35-39 yrs	23	29.1
40-45 yrs	27	34.3

Table 2: Parity wise comparison of different cases screened

Parity	No of cases screened	Percentage
p0	6	7.5%
P1	21	26.5%
P2	24	30.3%
>p2	28	35.7%

Table 3: Pap findings in the patients coming with different symptoms

Symptom	Inflammatory	Normal	ASCUS	AGCUS	Endometrial Cells	HPV Koilocytes	Reactive Columnar Cells	Necrotic Malig Cells	LSIL	Total
Pain	6	2	-	-	2	1	-	-	-	11
White discharge pv	11	7	2	1	4	6	2	1	3	37
Menorrhagia	6	1	-	-	2	1	-	-	-	10
Infertility	1	1	-	-	1	1				4
Menstrual Irregularities	1	2	1	1	-	-	1	-	-	6
SCOPV	3	1	-	-	-	-	-	-	-	4
Postcoital Bleeding	-	-	-	-	-	1	-	-	-	1
Spotting pv	-	-	1	1	-		-	2	-	4
Others	-	1	-	-	-	1	-	-	-	2
	28	15	4	3	9	11	3	3	3	79

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As per this study, PAP screening was most commonly done in 40-45 years age group followed by 35-40 years. The most common symptom for which this reproductive age group underwent PAP screening was white discharge per vagina followed by pain in the abdomen and menorrhagia. The PAP results revealed that most patients presenting with a complaint of white discharge had an inflammatory smear, cervicitis. Some patients around 11.39% (no-9) had HPV infection which was confirmed by HPV DNA and colposcopy.

The patients presenting with menorrhagia had an inflammatory smear in 7.59 %, some had endocervical cells in 4.08% present and were advised repeat Pap, but did not follow up.

The patients who presented with something coming out per vagina had an inflammatory smear in most of them. (Around 75%)

Patients having HPV infection had the most common complaint of white discharge PV and few of them presented with other complaints like pain, menorrhagia and post-coital bleeding PV.

Amongst this reproductive study group, 5.06% of patients had invasive cervical cancer .75% of them we diagnosed on Pap smear showing necrotic cells Malignant cells and with a hemorrhagic background.

Table 4: Corresponding colposcopic findings

	Inflammatory	Normal	LSIL	AGCUS	ASCUS	HSIL	Endocervical cells	Haemarrhagic smear	Columnar cells
Normal	6	8	-	1	-	-	-	-	-
Ectropion	2	2	-	-	1	-	-	-	-
Cervicitis	8	1	-	-	-	-	-	-	-
HPV	5	-	-	-	1	-	-	1	-
Squamous Metaplaisa	7	4	-	2	-	1	1	-	-
Invasive Cancer	-	-	-	-	1	-	-	3	-
CIN I	-	-	3	-	-	-	-	-	1

Table 5: Summary of cases diagnosed with carcinoma cervix

	Case 1	Case 2	Case 3	Case 4
Age	42 years	45 years	40 years	37 years
Complaint	Menorrhagia	Reddish discharge pv	Menorrhagia	White discharge pv
Comorbidity	Hypothyroidism	Seropositive, thrombocytosis		HPV Positive
Parity	P3L3	P5L5	P3L3	
Pap	Haemorrhagic smear	Normal	ASCUS-H	Haemorrhagic smear
Colposcopy	Invasive cancer	Invasive cancer	Invasive cancer	Invasive cancer
Eua	Growth on post lip	Ut bulky, growth bleeds on touch, medial parametrium involved	Ut normal, proliferative growth on the cervix which bleeds on touch	
Surgery	TAH +BSO	Cervical biopsy	Modified radical hysterectomy	Adv RT
HPR	Chronic cervicitis, leiomyoma	Large cell keratinising mod diff sq cell carcinoma	Mod diff sq cell carcinoma involving a lower uterine segment	

Amongst the four cases which were identified to be invasive carcinoma on colposcopy, 75 % were true positive results. One case was diagnosed to be HPV positive presenting with a chief complaint of white discharge and was confirmed on histopathological reports.

IV. Discussions

In this prospective study in which 79 women of the reproductive age group who came to gynecology Outpatient Department at Cama and Albless hospitals from January 2018 to December 2018. Out of 79 patients, 59 patients had a colposcopic examination. In the present study, around 10 % of cases reported have normal smears. And 10 % of cases had normal cervical cytology and colposcopic findings.

Papanicolaou and Traut first described Papanicolaou test in 1943. We recommend that all women over the age group of 35 years should undergo an annual check-up with the Pap test. Apart from diagnosing premalignant and malignant changes, we can also recognize other local conditions by PAP tests like condyloma accuminata and herpes. As PAP is only a screening test hence further investigations like a colposcopy, cervical biopsy, and fractional curettage. A Pap test can detect only 60-70% of cervical cancers and

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70% of endometrial cancers. Single testing detects 10-15% false negative reading. Hence a repeat PAP testing is advised every three yearly. (7)

In this retrospective analytical study we studied the pattern of cervical cytology in patients presenting with various symptomatology and their correlation with colposcopy. The Pap smear results showed normal cervical cytology findings in 21.51 %, inflammatory smears in 32.91 %, ASCUS in 5.06%, LSIL in 3.7% and invasive carcinoma in 5.06% patients. The results were similar to Thobbi VA et al. and Ghazal et al. (8). Another study done by Suma R shows normal 36% inflammatory smear 61.9% ASCUS 0.3 % LSIL 0.6% HSIL 1.2%. (9)

As the PAP smear screening is advised from 21 years, hence patients within the age group of 21 to 45 years were studied. The commonest age group which was screened by us was 40-45 years with 34.3 % of patients belonging to this age group. Most of the patients who were studied were multipara with parity > 2. It was similar to observations made by Thobbi VA et al. (8)

It was observed that amongst the study subject number of patient symptomatic were 35% parity 2 and above similar to observation by Dasgupta A et al. (10)

The various epithelial cell abnormalities were studied. ASCUS smear was advised to repeat cytology after 6 and 12 months and HPV DNA testing. ASC- H, HSIL, and LSIL we advised colposcopy.

Colposcopy was introduced in 1927 by Hinselmann in 1927.Colposcopy is the visualization of cervix under magnification for cervical lesions. In developing countries like India, it is not economic and possible to have universal cervical cancer screening due to low sources. WHO has recommended at least one smear for all women at about 40 years to reduce cancer deaths by 50 % (11).

In this study correlation between PAP and colposcopic findings revealed that most patients presenting with symptom of white discharge PV had inflammatory smear which had either normal colposcopy or showed findings suggestive of HPV infection and squamous metaplasia. We further advice HPV DNA testing. Some cases had polyp and ectopion on colposcopy. Most of the patients with abnormal PAP presented with the complaint of white discharge PV and menorrhagia.

Patients having HPV infection had the most common complaint of white discharge PV and few of them presented with other complaints like pain, menorrhagia and post-coital bleeding PV.

The correlation between Pap smear, symptomatology, and colposcopic findings suggested that most patients presented with white discharge PV, menorrhagia or pain in the abdomen. The PAP results showed inflammatory findings with evidence of metaplasia and cervicitis and infection of HPV DNA.

The patients having white discharge PV or menorrhagia had ASCUS and AGCUS on Pap smear which had squamous metaplasia (3.3%), HPV infection (1.6%) and invasive cancer.

V. Conclusions

The Pap smear is a simple, safe, practical and cost-effective method for early detection of cervical cancer and its precursors. In low resource countries like India, it is the most logical screening modality although it has a very low sensitivity; detection rates could be further improved using liquid-based cytology and the use of endocervical cytobrush.

We can increase the specificity of this screening test by a repeat Pap test at least every three yearly. As the progression from pre-invasive to invasive cancer is very slow, hence repeat PAP can detect early invasive cancers and eventually decrease morbidity and mortality following cervical cancers. Women education and awareness regarding cervical cytology testing should be encouraged. At the same time, the false negative of Pap smear unreported needs consideration.

Thus Pap smear along with colposcopy can be an efficacious tool for screening to diagnose the early invasive cancer stages which stay relatively asymptomatic.

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