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A study of cervical pap smears in a tertiary care hospital of Ahmedabad, Gujarat, India

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Abstract
Background: Cervical cancer is the fourth leading cause of death in females worldwide. In India and other developing countries cervical cancer is the leading cause of morbidity and mortality. Repetitive cytological screening with Pap smear help to diagnose cervical cancer in pervasive stage.
Aims and Objectives: To evaluate the use of Pap smear screening method for detection of precancerous lesions of cervix. To increase awareness about screening program among women.
Materials and Methods: Study is carrying out by taking 487 Pap smear from patients attending gynecology OPD at Dr. M.K. Shah Medical College and Research Centre from January 2016 to March 2019. Smears were reported as per the 2014 Bethesda system.
Results: Total 487 patients were screened. Out of 487, 194 were having normal cytology and 262 cases with inflammatory changes. 25 cases were unsatisfactory. 1 case of ASCUS, 2 cases of SCC and 1 case of HSIL, 1 case of LSIL were observed.
Conclusion: Pap smear test is a very simple, safe, noninvasive, economical OPD based procedure to detect pervasive cervical epithelial lesions. Every women should undergo Pap test at least once in her life before the age of 45 years. Timely screening of pervasive lesion allows presentation from invasive cervical smear.

Keywords: Cervical cancer, Pap smear, Ni

Introduction

Cervical cancer is the fourth commonest cause of death among women in developing countries. India, the second most populous country in the world accounts for about 25% of cervical cancer deaths with an estimated incidence of about 23.29% [1]. Cervical cancer ranks as the second cause for female cancer in India [2]. It is estimated that in India 1, 26, 000 new cases of cervical cancer occur annually [3]. The screening for cervical cancer is based on the assumption that early detection may allow early treatment. The high burden of cervical cancer in developing countries is largely due to a lack of effective screening programs [4, 5].

There have been few public health measures in the history of medicine that have transformed human life as we know it. A number of these have been in the form of immunization and therapies. The only screening test which has been universally accepted and has stood the test of time is the Pap smear test for the early detection of cervical cancer [6]. The stigma associated with some gynecological problems, myths, shyness, illiteracy, poor social status and gender discrimination are major hurdles in seeking health care [7].

The Pap smear was introduced in 1941 and became the standard screening test for cervical cancer and premalignant lesions [8]. Many studies in the literature showed that there is a reduction in the incidence and mortality due to invasive cervical cancer worldwide because of early detection and screening; this is possible because the Pap test detects early cervical epithelial cell abnormalities and mild to severe dysplasia to invasive cancer and facilitates early diagnosis [9-11]. Pap test not only plays a crucial role in diagnosis of cervical cancers and its precursor lesions but also aids in diagnosis of bacterial and inflammatory conditions including the identification of causative organism, hormone related benign epithelial changes and changes due to therapeutic agents.

There is a need to educate the women regarding the symptoms of cervical cancer via screening awareness programs, and motivate them to visit doctor for a cancer screening. Women and her family members should be counseled about the need for cancer screening.

Thus, we have to strengthen our health services and health care system include screening at primary health centers.
The aim of study was to study and analyze the Pap smear reports for precancerous and malignant lesions and planning the treatment of patients accordingly. The objectives of the study was to detect early cervical neoplasia in asymptomatic women of educated society living in urban locality. Being a simple, effective and versatile, the Pap smear becomes an integral part of routine clinical examination and large population at risk can be screened.

Materials and Methods

Place and Type of study: This is a prospective descriptive study done in a private medical college in Ahmedabad, Gujarat to study the profile of Pap smears during the years January 2016 to March 2019.

Sampling methods and sample collection

A Pap test is performed by using a brush or spatula to gently scrape the cellular material from the squamo-columnar junction of the cervix and smeared onto a glass slide. The slides are fixed in methanol and stained by pap stain, visually examined under a microscope by cytopathology's.
The cytological interpretation of smears were made according to the new Bethesda system for reporting cervical cytology 2014, According to 2014 Bethesda system, lesions are broadly divided into negative for Intraepitheal Neoplasia (NILM) and epithelial cells abnormalities includes squamous and glandular cells.
The squamous epithial cell abnormality has been categorized into:

1. Atypical squamous cells (ASC) includes
   a. ASC-US (ASC of undetermined significance)
   b. ASC-H (ASC cannot excludes high grade squamous intraepithelial lesions)
2. SIL (Squamous intraepithelial lesions)
   a. LSIL (Low grade SIL)
   b. HSIL (High grade SIL)

Those with LSIL and HSIL were counseled and were advised to undergo biopsy for histopathological examination. Frank invasive malignancy was termed as squamous cell carcinoma.
Similarly, Glandular cell abnormalities were categorized into

1. Atypical endocervical cell not otherwise specified
2. Atypical endometrial cells not otherwise specified
3. Atypical glandular cells not otherwise specified.

Inclusion criteria: All women came to gynecology department in the age group from 15 to 90 years who consented for Pap test included in the study.

Exclusion criteria: The women who is unwilling to do the Pap test and who have undergone hysterectomy, pregnant, who used local antiseptic.

Statasticalanalysis: Data entered in Excel sheet and using Microsoft word.

Results

A total of 487 Pap smears taken from women presenting to Gynecology OPD of SMS Hospital Ahmedabad between 10-80 years of age. Majority belongs to age group 31-40 years (42.71%).

Table 1: Age wise distribution of study population

Age group	No. Of Cases	%
10to20	09	1.84
21to30	76	15.60
31to40	208	42.71
41to50	134	27.51
51to60	38	7.80
61to70	18	3.69
71to80	04	0.82

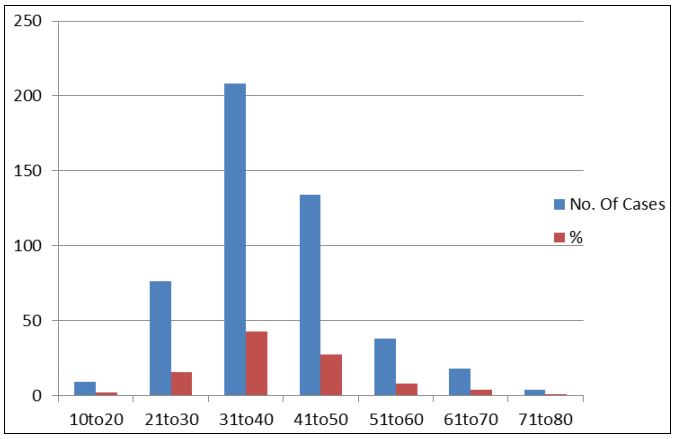

Fig 1: Age wise distribution of study population

Out of 487 cases majority of the cases were benign comprising Negative for Intraepithelial Neoplasm of about 194 (40.24%) followed by SCC (0.4%), HSIL (0.41%) and ASCUS (0.2%), and LSIL (0.20%). Table 2 shows 25 cases which were unsatisfactory for evaluation. The main cause of inadequacy were inadequate squamous component or obscuring inflammation.

Table 2: Category wise distribution of Pap smear diagnosis

Category	No. Of Cases	%
Normal- NILM	194	40.24
Unsatisfactory	25	5.18
ASCUS	1	0.20
HSIL	2	0.41
LSIL	1	0.20
SCC	2	0.41

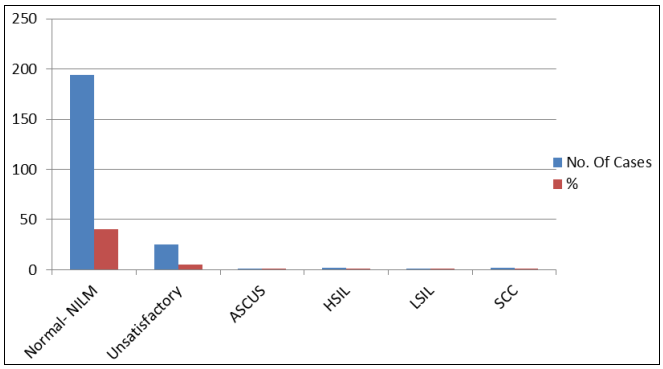

Fig 2: Category wise distribution of PAP smear diagnosis

Out of 487 cases, NILM in 194 cases and inflammatory smears observed in 262 cases followed by unsatisfactory in 25 cases. There are 01 case of ASCUS, 02 case of HSIL and 01 case of LSIL also reported.

Table 3: Distribution of NILM belonging to various categories other Pap diagnosis

Other diagnosis	No. Of Cases	%
Inflammation	255	54.35
Atrophic	06	1.23
Trichomonas Vaginalis	01	0.20

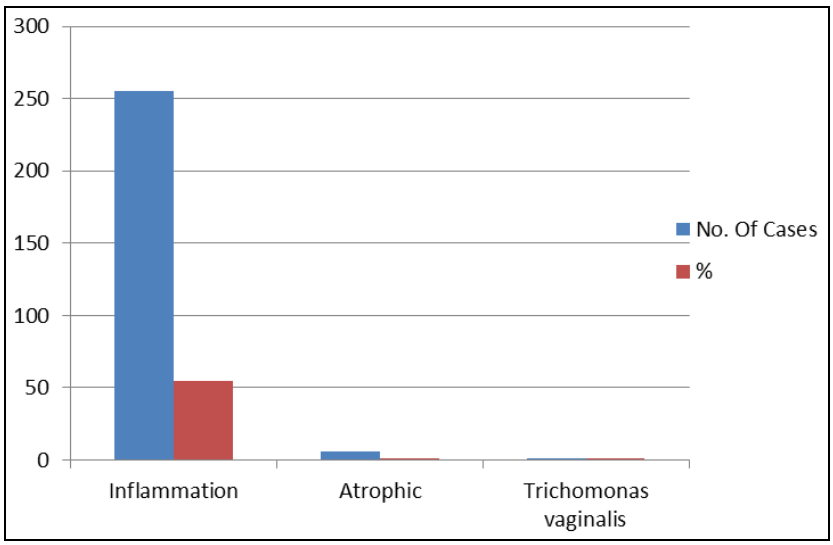

Fig 3: Distribution of NILM belonging to various categories of Pap diagnosis

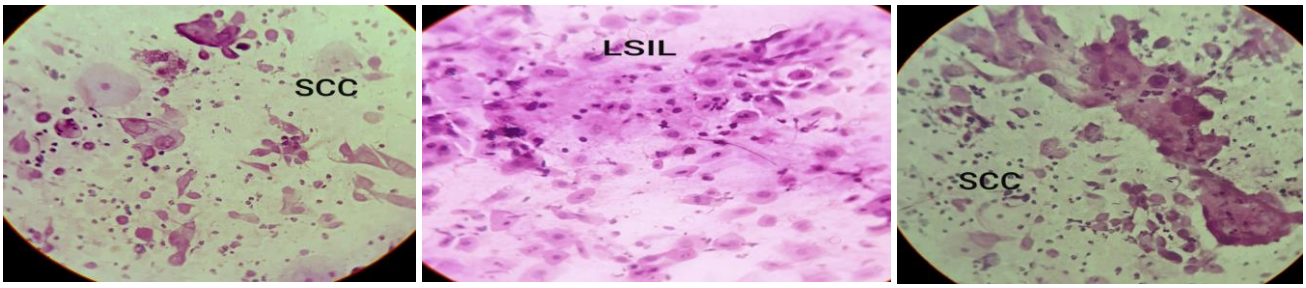

Fig 4: Figures of squamous cell carcinoma & LSIL

Discussion

It is a well-known fact that the incidence of cervical cancer has been reduced dramatically after the introduction of screening programmes [12]. Preventive measures can be primary or secondary. Primary modalities include changes in sexual behavior and human papilloma virus vaccination. Secondary prevention of cervical cancer includes visual inspection of cervix, cervicoscopy, HPV testing and cytology. Pap test aimed at identification of premalignant and malignant lesions, which may need follow treatment.

Pap smear based screening methods have played a pivotal mode in reducing cervical cancer incidence and mortality up to 50-70% in developed countries [13].

Varghese C *et al.* [14] and Suma RK *et al.* [15] in their study mean age of patients to be 39.5 and 38.2 years, matches with our common age group 31-40 years. Mean age of Omnashaki study [16] and Shashidhar MR [17] is 31-40 years also matches with present study.

Table 4: Comparison of benign lesions findings of Pap smear cytology with other studies.

Study	Cases	Inadequate	Normal	Atrophic	Inflammatory
Vaghela *et al.* [18]	400	13.25	1.50	-	53
Thomas *et al.* [19]	85	5.88	58.82	-	-
Chauhan *et al.* [20]	5778	-	9.78	-	69.19
Mital *et al.* [21]	250	-	40.65	-	12.70
Spinilla *et al.* [22]	1483	-	17.39	72.96	9.64
Shashidhar M R [17]	308	2.27	51.36	15.64	26.53
Tailor *et al.* [33]	1425	-	-	1.33	-
Present study	487	5.186	40.24	1.23	54.35

In the present study Table 4.shows 5.186% of inadequate smears that matches with Thomas *et al.* [19] study. Incidence of atrophic changes was lower in present study compare to study done by Spinilla *et al.* [22] which included the only post-menopausal group. Normal Cytomorphologic was observed in 40.24% which is comparable to Mittal *et al.* [21] and Shashidhar *et al.* Study [17].

Table 5: Studies comparing prevalence of epithelial abnormalities

Study	Total Case	SCC%	ASC-US%	HSIL%	LSIL%
Nayir *et al*. [23]	-	-	1.7	0.1	0.5
Mulay K [24]	6010	0.06	0.64	0.16	0.22
Misra JS [25]	36484	0.6	-	1.6	5.5
Mandakini M Patel [26]	995	0.7	4.1	0.1	0.1
Bal MS [27]	300	1.3	0.3	0.7	2.7
Ushasarma [28]	242	3.53	1.32	3.53	3.53
Kamna Gupta [29]	4703	0.28	0.52	0.91	1.36
Preetha George [30]	1000	0.3	0.3	0.9	2.0
Sadhana Kothari [31]	36740	0.05	0.11	0.31	0.83
Geethu G. Nair [32]	2028	0.20	0.15	0.491	1.58
Tailor *et al.* [33]	1425	0.14	1.4	0.35	0
Present study	487	0.41	0.20	0.41	0.20

In present study, out of 487 total cases 481(98.76%) cases were benign and inflammation and 6 cases (1.23%) were premalignant and malignant that matches with Hemalitailor [33] and Sadhana Kothari [31] study, which show total prevalence of epithelial abnormality of 1.89% and 1.32% respectively.

Conclusion

Cervix carcinoma is a preventable disease but there is no perfect screening test that has 100% sensitivity and specificity. Pap smear testing is a very useful, simple, economical and safe tool to detect preinvasive cervical epithelial lesion. Therefore in the present study an attempt has been made to analyze Pap smear testing.

Pap test has been regarded as the gold standard for cervical screening programs. Pap smear test combine with HPV DNA testing can help increase the sensitivity of detection of cervical pathology.

In developing country like India, there should be a regular health checkup camps as well as health awareness camp organized by Government.

By regular checkup with Pap smear test we can diagnose the precancerous lesions of cervix.

Community should be educated about the test by wide spread educational programs that will help to prevent mortality and morbidity due to cervical cancer.

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