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ORIGINAL RESEARCH

STUDY OF CERVICAL LESIONS BY PAP SMEAR SCREENING IN 1000 CASES IN A TERTIARY CARE HOSPITAL PUNJAB INDIA

Ninder Kumar[1], Manmeet Kaur[2*], Mohanvir Kaur[3]

[1,3]Associate Professor, Department of Pathology, Government Medical College Patiala, Punjab, India.

[*2]Assistant Professor, Department of Pathology, Government Medical College Patiala, Punjab, India.

Corresponding Author:

Dr. Manmeet Kaur, Assistant Professor, Department of Pathology, Government Medical College Patiala, Punjab, India.

ABSTRACT

Background: Cancer of uterine cervix is a leading cause of mortality and morbidity in developing countries including India due to lack of proper screening, especially in the rural and suburban areas. This may be due to dearth of awareness amongst the women of developing countries. Cervical carcinoma is the fourth most common cancer in the world. Developing countries accounted to about 80% of the global burden. This retrospective study was conducted to highlight the importance of Pap smear examination as screening test in differentiating inflammatory, premalignant and malignant lesions**.**

Materials and Methods: This retrospective study was conducted among 1000 cervical pap smears of women with age group 20 to 75 years coming to the obstetrics and gynaecology department and cytology section of pathology, Government Medical College and Rajindra Hospiatal Patiala. All the smears were reported as per the 2014 Bethesda system**.**

Results: In Our study, we found 12.1% inadequate smear for reporting, 35% cases NILM including inflammatory smear, 1.7% atrophic, 4.4% ASCUS, 1.5% ASC-H, 0.7% LSIL, 1.4% HSIL and 0.4% cases of squamous cell carcinoma. Although 0.4% is a small fraction, PAP smear is a cost effective, non-invasive screening test for cervical lesions.

Conclusion: Cervical cytology by Pap smear is an important tool for early detection of premalignant and malignant lesions of cervix. Regular Pap smear screening should be conducted in vulnerable age group.

Keywords: PAP smear, Cervical cytology, Squamous cell carcinoma.

INTRODUCTION

Rumanian pathologist Aureli Babes, first described the technique of clinical cytology, which was further developed by George Papanicolaou at Cornell University, and is universally known as the Pap test. It became the standard screening test for premalignant lesions and invasive cervical carcinoma.[1]

In most countries, invasive squamous cell carcinoma of the cervix is still the most common malignancy of the female genital tract.[2] Cervical cancer is the most common cause of mortality and morbidity in developing countries like India.[3] The older age groups are most commonly affected, with increased relative frequency in young white females. Early marriage, low socio-economic level and multiparity have proven to be in association with a

higher incidence of cervical carcinoma. Age at first intercourse being the single most important factor.[2]

Genital HPV infections and cervical cancer association was first demonstrated in the early 1980s by Harold zur Hausen. Since then, this association has become well established.[3]

There have been 30 types of HPV that are identified which spread through sexual contact and infect primarily the mucosa of cervix, vagina, vulva, penis, and anus. Out of these, type 16 liable for about half of the cervical cases in the United States and Europe and types 18, 31 and 45 accountable for 25 to 30% of cases.[4] 99.7% of cervical squamous cell cancer cases are associated with HPV worldwide.[5] Many methods are used to identify HPV genotypes. Among them are PCR, RFLP, and hybridization with type-specific probes using dot blot formats.[6, 7]

The usual presenting symptoms with which the women come to the clinic are pelvic pain, discharge, and/or abnormal bleeding.[8]

Clinical cytology has been most successfully and extensively applied in the diagnosis of invasive carcinoma of the uterine cervix and precursor lesions. It is used both as a screening test in asymptomatic populations and in the follow up of patients with cervical carcinomas which have been treated by either conservative surgery or irradiation.[9]

It is a routine screening test, but the overall sensitivity in detection premalignant lesions like high grade squamous intraepithelial lesion (HSIL) is 70-80% and has been proved very effective in differentiating between inflammatory, premalignant and malignant lesions.[10,11]

In 1988, the Bethesda system of terminology was introduced to sub-classify the lesions into high grade and low grade squamous intraepithelial lesions (SIL) for Pap smear reporting.[12,13]

Recently in 2014 Bethesda System (TBS) for reporting the results of cervical cytology was developed which introduced new terminology that could provide clear guidance for clinical management.[14]

MATERIALS & METHODS

This retrospective study was conducted among 1000 cervical pap smears of women with age group 20 to 75 years coming to the obstetrics and gynaecology department and cytology section of pathology, Government Medical College and Rajindra Hospital Patiala. All the smears were reported as per the 2014 Bethesda system.

A total of 1000 cases were included in the study with women of age ranging from 20-75 years, complaining of DPV, BPV, Pain lower abdomen, primary and secondary infertility, menstrual problems, follow-up patients of genital tract malignancies and for routine screening. History in reference to menarche, age at first child birth, parity, personal and genital hygiene, vaginal discharge, mass per vaginum and contraception was taken.

Cervix was inspected with Sim's speculum and examined for conditions like erosion, ectropion, hypertrophy, hyperemia, prolapse endocervicitis, suspicious growth on cervix and elongation of cervix.

Smears were taken and immediately fixed in absolute alcohol and stained according to the papanicolaou technique. The Bethesda system 2014 of cervical cytology was used to report the observed cyto-pathological changes in the exfoliated cervical epithelial cells.

RESULTS

In our study the women of all age groups included ranging from 20 to 80 years with mean age 40.4yrs. The cases were grouped as per age, presenting symptoms and microscopic finding. Maximum number of cases belongs to 30-39 yrs. of age, 28.8% and minimum was 70-79 yrs. of age 2.3%. Main presenting symptom was pain in pelvic region, 31.9% followed by DPV 28.4% and least common was itching in perineal area 2%. Microscopic findings were chiefly inflammatory 41.6%, NILM 35.5% and least common AGUS NOS 0.1%.

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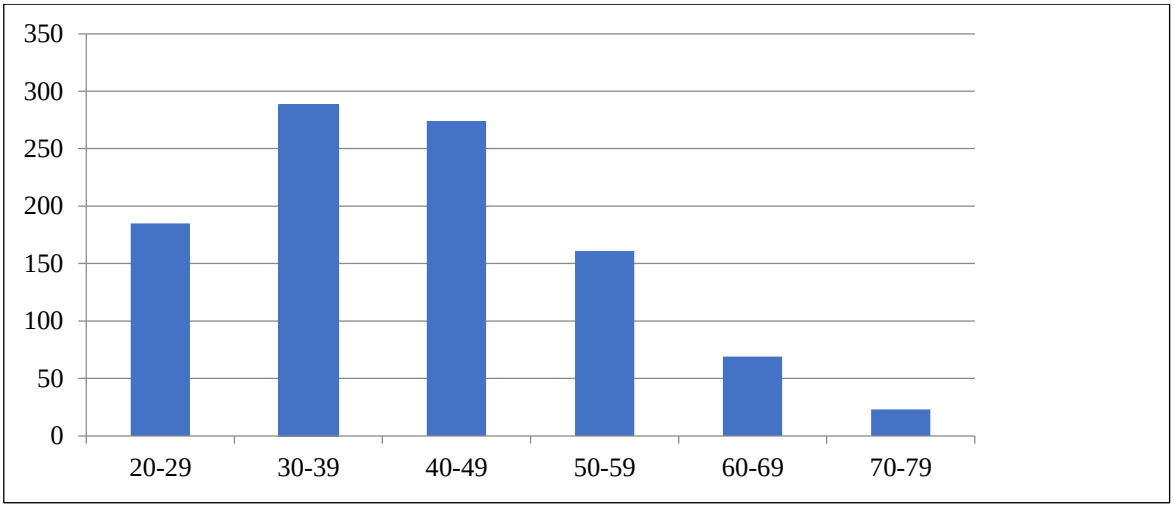
Table 1: Age wise distribution of total number of patients

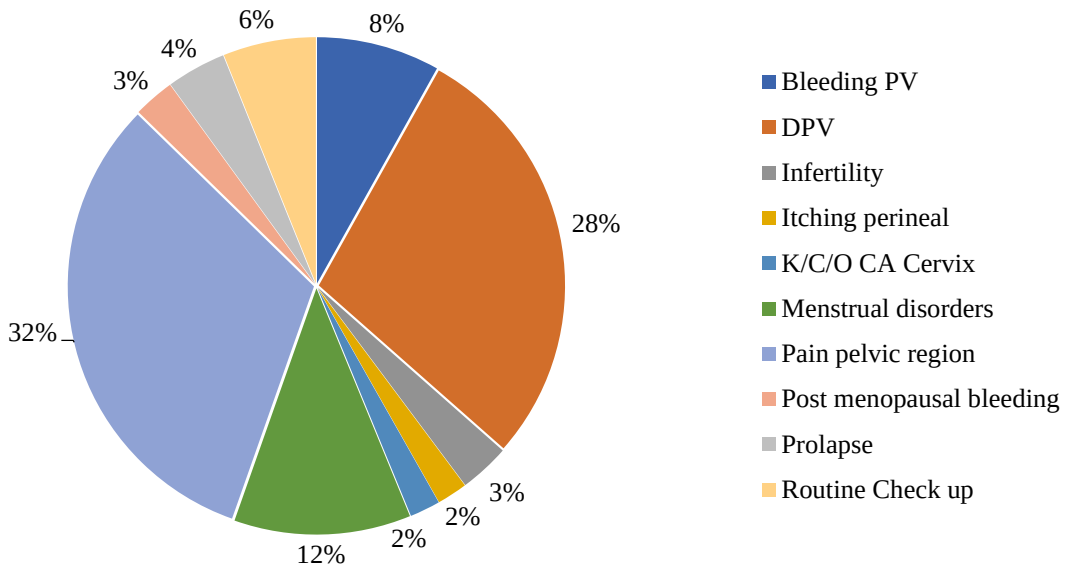
AGE GROUP	NO. OF CASES	PERCENTAGE
20-29	185	18.5
30-39	288	28.8
40-49	274	27.4
50-59	161	16.1
60-69	69	6.9
70-79	23	2.3



Graph 1: Bar graph showing distribution of different age groups

Table 2: Reasons/symptoms for performing pap in patients

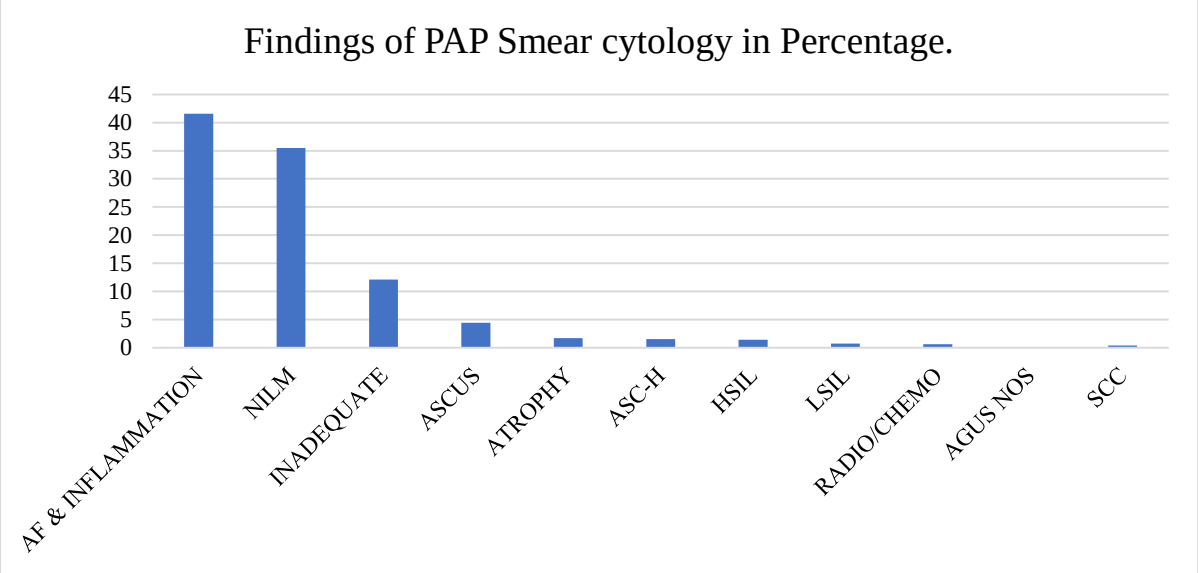
REASONS/SYMPTOM	No. OF CASES	PERCENTAGE
Bleeding PV	81	8.1
DPV	284	28.4
Infertility	33	3.3
Itching perineal area	20	2
K/C/O Ca cervix	20	2
Menstrual disorders	116	11.6
Pain pelvic region	319	31.9
Post-menopausal bleeding	27	2.7
Prolapse	39	3.9
Routine check-up	61	6.1



Graph 2: Pie graph showing distribution of presenting symptoms

Table 3: Findings of PAP Smear cytology

IMPRESSION	NO. OF CASES	PERCENTAGE
AF & INFLAMMATION	416	41.6
NILM	355	35.5
INADEQUATE	121	12.1
ASCUS	44	4.4
ATROPHY	17	1.7
ASC-H	15	1.5
HSIL	14	1.4
LSIL	07	0.7
RADIO/CHEMO	06	0.6
AGUS NOS	01	0.1
SCC	04	0.4



Graph 3: Bar graph showing distribution of findings

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Table 4: Showing comparative finding in cytological smear (All values in percentage)

Auther and year	Inadequate	NILM	Atrophy	ASCUS	ASC-H	LSIL	HSIL	SCC
Vaghela BK[15] 2014	4.8	70.8	--	2.8	--	12.4	5	2.4
Sunita A[16] 2014	5.71	88.93	--	2.32	--	1.96	0.36	0.54
Pudasaini S[17] 2015	0.9	87.9	2.4	0.1	--	0.2	0.2	--
Tailor HJ [18] 2015	--	--	1.33	0.77	0.35	--	0.35	0.14
Patel PCB[19] 2016	8.9	86.5	--	1.7	0.8	0.6	0.6	0.3
Sachan PL[20] 2019	6.42	91.5	--	2.9	--	5.09	0.48	0
Present Study	12.1	35	1.7	4.4	1.5	0.7	1.4	0.4

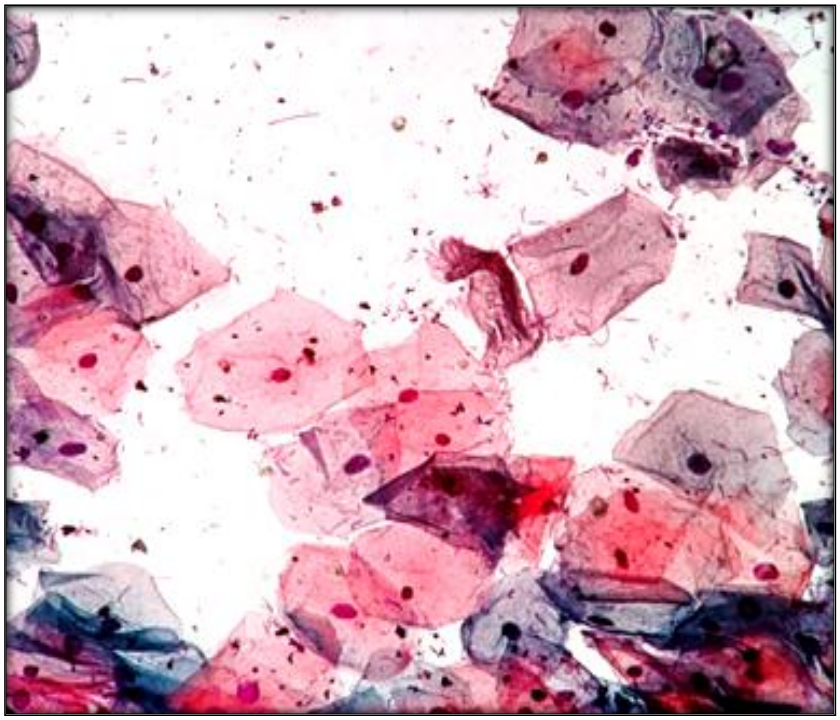

Figure 1: Microscopic veiw depicting normal smear. (40x)

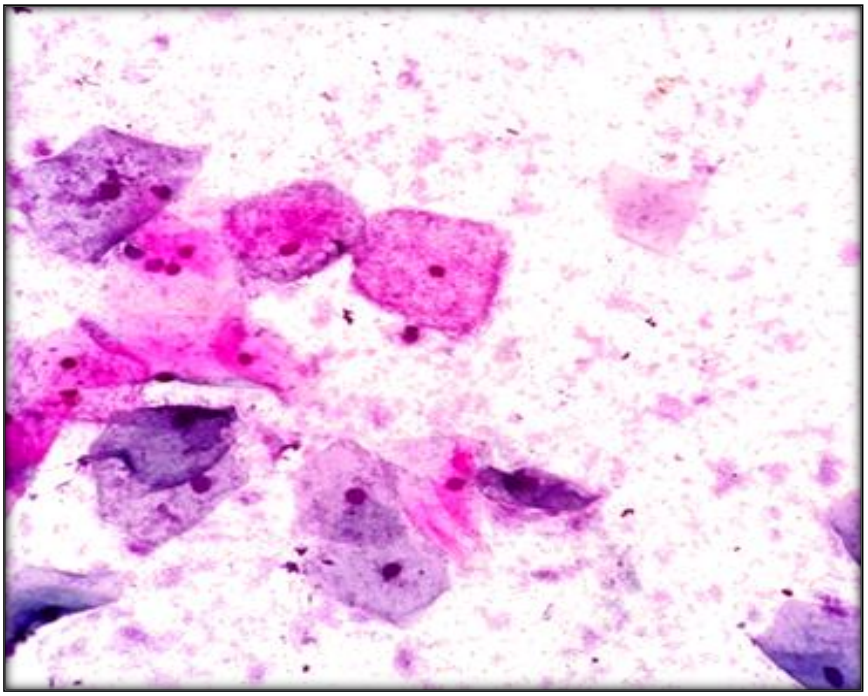

Figure 2: Microscopic veiw depicting Bacterial Vaginosis. (40x)

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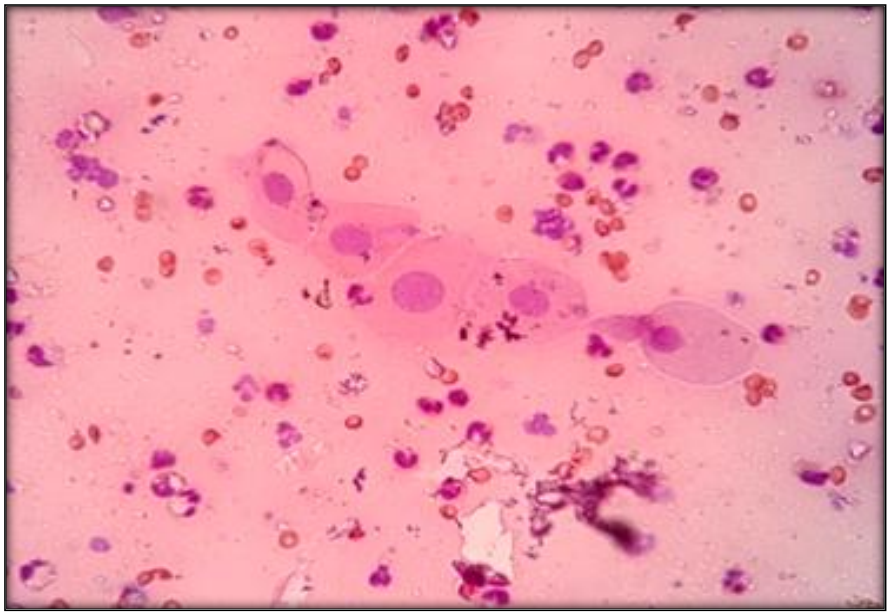

Figure 3: Microscopic veiw depicting Inflammatory smear with Reactive nucleomegaly. (40x)

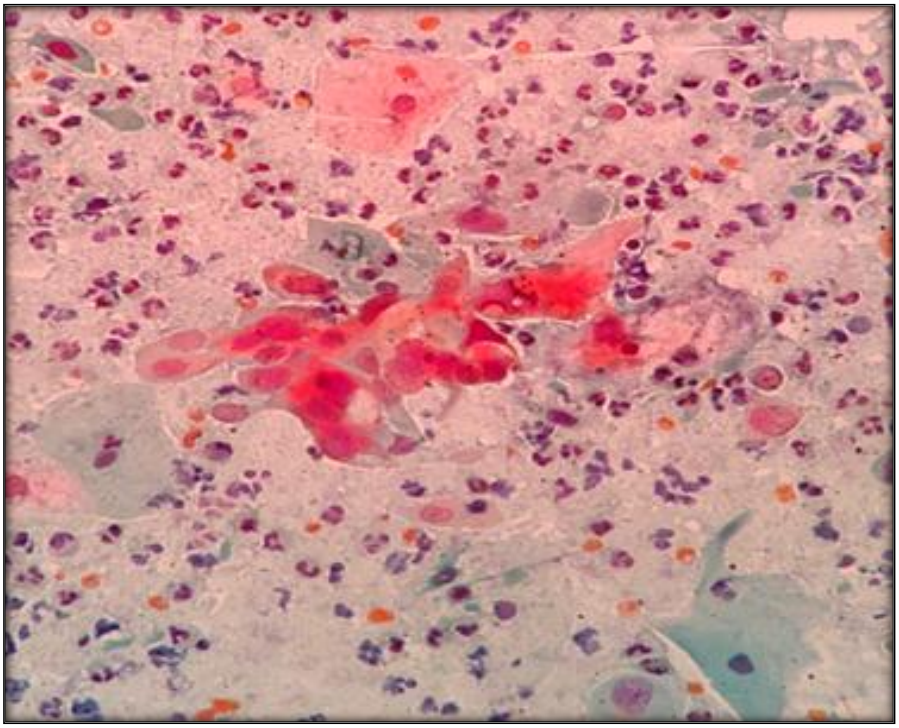

Figure 4: Microscopic veiw depicting SCC. (40x)

DISCUSSION

Globally cervical carcinoma is solely responsible for about 5% of all cancer related deaths in women.[21] Instigation of screening program in the developed countries has shown a noticeable decline in the cervical cancer related mortality.[22] The impact is not only in developing countries, but remarkable amount of effort is dedicated to cervical cancer screening in United States.[23]

American Cancer Society recommends that, the Pap smear test should be done every 3 years, and a Pap smear with an HPV DNA test is advocated as a screening method every 5 years.[24]

Bearing in mind the effectiveness of pap smear cytology in averting cervical cancer it is advocated that it should be started in all women preferably at the age of 21years.[25]
and it should continue during the active reproductive period and even beyond up to menopause. After that it should be done in symptomatic cases.
To report any smear, the adequacy of the smear is must, so due consideration given to this parameter. The present study has 12.1% of unsatisfactory smears which was similar to the study done by Patel et al[19] in which unsatisfactory smears were 8.9%, however Pudasaini S et al[17], in contrast, reported 0.9% inadequacy. The main cause for inadequacy of smear was obscure visibility by inflammatory cells in most of studies.
The mean age in our study was 40.4 yrs. This is almost similar to other studies (42.6 Patel[19] 43.7 Tailor[18] 44.1 Sunita[16]) Negative for intraepithelial lesion or malignancy (NILM) was seen in 35.5% cases which correlates well with study done by Vaghela et al[15] and Saha et al26 NILM were seen in 47% and 50.6% respectively. In contrast Pudasaini S[17] noted 87.9% and Bamanikar et al[27] 88.93% NILM cases.
In our study ASCUS, ASC-H, LSIL, HSIL and SCC was 4.4%, 1.5%, 0.7%, 1.4% and 0.4% respectively. Other similar studies done by various authors has shown ASCUS %age as 2.8% vaghela et al, 2.90% Pushp et al and 2.32% Sunita.16 While some has shown only 01% Pudasaini S, 0.77 Hemali et Al, However, the %age of ASCUS was relatively high in 40.74% in study done by Tailor et al.
LSIL in our study was 0.7% well concordance with Pudasaini 0.2%, while others noted LSIL as 1.96% Sunita A, 2.90% Pushplata and contrasting %age 12.4 by vaghela et Al. HSIL which is 1.4% noted by us is corroborated by other authors like Pushp 0.48%, Sunita A 0.36%, Tailor 0.35% and Pudasaini 0.2% while in contrast Vaghela et al noted 5% cases of HSIL. Squamous cell carcinoma observed by present study was 0.4% which is endorsed by almost similar results by Tailor et al 0.14%, Sunita A 0.54% however, vaghela et al reported 2.4% cases of Squamous cell carcinoma. Atypical glandular cells of undetermined significance (AGUS) defined as morphologic changes in glandular cells, both endocervical and endometrial, beyond those that are suggestive of the benign reactive process, but not sufficient enough for the diagnosis of adenocarcinoma in situ. In our study AGUS NOS was present in 0.1% cases whereas Tailor observed 0.28% and vaghela 1.2%. Majority of the authors have noticed almost similar findings in pap smear examination however some contrasting finding was also there. This may be due to subjective nature or observation bias of pap smear evaluation and, not least, the different study groups and geographical areas evaluated by various authors.

CONCLUSION

The incidence of cervical cancer has lowered over the decades after the starting of mass screening programs promoting Pap smear as an effective tool for early detection of premalignant and malignant lesions of cervix. Hence, regular pap smear screening is recommended in vulnerable age group. There has been remarkable reduction in the number of cervical cancers as corroborated by various studies, There has been 38 to 57% reduction in the overall incidence of invasive carcinoma. But it still remains a screening test and should not be loaded with over expectation of detecting every case of carcinoma.4 This test is a cost–effective and relatively easy to perform as compared to some highly sophisticated tests like HPV detection. This study is concluded with the opinion that each and every case of any gynaecological symptoms should be screened with pap smear examination for any lesion of uterine cervix.

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