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Original Article

Accuracy and Correlations of Cervical Cytology: Cervical Pap Smears Screening and Detection of Abnormal Cytology in Southern Indian Population in Tertiary Centre of Karwar Institute of Medical Sciences, Karwar, Karnataka

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Abstract

Introduction: Cervical carcinoma in women is the 3rd most prevalent cancer of the world. It is also considered as 2nd most common carcinoma in reproductive age group. Cervical Pap smears is used as prediagnosis for early screening and detection of the diseases.

Objective: 1. Screening of cervical PAP smears, 2. Evaluation of the Pre malignant lesions. 3. Study of spectrum of changes seen in cervical PAP smears with ages.

Methodology: This was a prospective study done from September 2022 – September 2023.Cervical pap smears were sent from OBG department for routine screening which were stained and prepared for cytological evaluation with reporting based on Bethesda system of reporting cervical cytology.

Results: In the present study, total 357 cases were analyzed with most common age group were between 41-50 years old with most common cases were of asymptomatic routine 119(33%), followed by WDPV 57cases (16%) and abdominal pain 33 cases (9%). 234 smears (65%) belong to NILM, 63 smears (17%) Inflammatory changes and 31 smears (8.68%) of atrophic related changes.

Conclusion: This study concludes that premalignant and malignant lesions were less prevalent in our institution. Among all cases, WDPV and abdominal painwere most common symptoms among the visiting patients in the Hospital with most smears were of NILM, Inflammatory and atrophic related changes been reported.

Key words: Cervix Screening, PAP Smear, Pap Cytology

INTRODUCTION

Cervical cancer is an increasing health problem and a major cause of mortality with incidence arising in worldwide. There is a huge disparity between the incidence and Routi g has reduced the incidence in developed nations. There is a rising incidence in developing nations. According to the World Cancer statistics, >80% of cases are found in developing nations due to a lack of awareness and difficulty in conducting cytology-based screening programs.[1]

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The incidence of cervical cancer in India is 18.7 per 1 lac women with reported cervical cancer-related death were 45,300 estimated in 2019. The national screening programs for cervical cancer use primary screening test with a variable test range of 30–65 years for early detection of first symptoms at the PHC level. Government of India included

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human papillomavirus (HPV) vaccination program for its preventions.[2]

Cervical carcinoma in women is the 2nd most prevalent cancer of the world. It is also considered as 2nd most common carcinoma in the reproductive age group. Data on cervical cancer incidence and mortality from 1990 to 2019 for Indian states were extracted from Global Burden of Disease study shows that the highest incidence and mortality of cervical cancer were reported in Tamil Nādu and the lowest in Jammu and Kashmir and Ladakh. The highest percentage decrement in the incidence of cervical cancer from 1990 to 2019 was reported in Jharkhand and the lowest in Jammu and Kashmir.[3]

A Papanicolaou (Pap) smear test, which is the main screening test for detecting precancerous cervical intraepithelial neoplasia and the early stage of invasive cervical cancer, can detect early cervical epithelial alterations. Cervical cancer mortality has significantly decreased in developed nations as a result of comprehensive screening program.[4]

Cervical cancer is a preventable disease due to the long pre-invasive stage. If thorough screening is used, early detection and proper treatment are achievable. Cervical cytology by Pap smear is an easy, safe test to identify premalignant and malignant cervix lesions at an early stage, assisting doctors in the early and more successful care of patients.[5]

Here in our institute, we did a prospective study based on the morphology and changes abnormal cytology on the cervical pap smears with available history for the correlations for the study.

Aims

The aim of the study was to detection and screening of cervical PAP smears for premalignant lesions and malignancy.

Objectives

1. Screening of cervical PAP smears
2. Evaluation of the Pre-malignant lesions
3. Study of spectrum of changes seen in cervical PAP smears with ages.

MATERIALS AND METHODS

Sources of Data

Hospital OPD and patients based cervical pap smears are sent for routine screening.

Study Designs

This was a prospective observational-based study.

Study Population

Patients were visiting KRIMS Hospital.

Sample Size

The sample size was 353 or more.

Inclusion Criteria

1. Age above 18 years
2. Adequate smears for evaluation
3. Case smears studied from September 2022 to September 2023
4. Descriptive study based on smears available in the department.

Exclusion Criteria

1. Inadequate/unsatisfactory smears
2. Age below 18 years.

Methodology

Here, the routine or suspected cervical pap procedure is done in OBG department doctors by Ayers spatula and smears are been sent to the pathology department for evaluation. The relevant clinical history is been taken and been sent to us.

Two conventional smears will be made and will be evaluated by two independent pathologists for screening of it.

Statistical Analysis

Statistical analysis is done using MS EXCEL.

Sample size = 353

It is been calculated using the formula $n = \frac{z^2 \cdot pq}{E^2}$

$=0.5651/0.0016 = 353.16$

Z = 1.96: Standard normal variable at 5% level of significance

p = 82.08%: Proportion of Negative for intraepithelial lesion/malignancy (NILM) as taken from the reference articles

$q = 1-p$

E = marginal error = 4%

Results Interpretations: It is done as per Bethesda System of Reporting Cervical Cytology given in Table 1.

RESULTS

In this study, a total of 357 smears were studied with the most common age group for the screening done and patients came were between 41 and 50 years old, 139 cases

Table 1: Bethesda system of reporting cervical cytology

Types	Diagnostic category
Specimen adequacy	1. Satisfactory for evaluation
	2.Unsatifactoy for evaluation (hemorrhage , severe inflammations)
General categorization	Negative for intraepithelial lesion or malignancy
	Epithelial cell abnormality
	Other
Non neoplastic results, organisms	Trichomonas vaginalis
	Fungal organism morphologically consistent with candida species
	Shift in flora suggestive of bacterial vaginosis
	Bactera morphologically consistent with actinomyoces species
	Cellular changes consistent with herpes simplex virus
Other non neoplastic changes	Reactive cellular changes due to infections
	Reactive cellular changes due to radiations
	Reactive cellular changes due to intrauterine
	Benign glandular cells after hysterectomy
	Atrophy
Epithelial cell abnormalities	I. Squamous cell abnormalities
	Atypical squamous cell
	a. of undetermined significance (ASC US)
	b. cannot exclude HSIL (ASC-H)
	2. Low grade squamous epithelial lesion (LSIL)
	3. High grade squamous epithelial lesion (HSIL)
	4.Squamous cell carcinoma
	II. Glandular cell abnormalties
	1. Atypical glandular cells (AGC)(specify endocervical , endometrial or not otherwise specified)
	2. Atypical glandular , favor neoplastic (specify endocervical or not otherwise specified)
	3. Endocervical adenocarcinoma in situ (AIS)
	4. Adenocarcinoma (endocervical / endometrial / extrauterine or not otherwise specified)

(38%), followed by 93cases (26%) were of 31 and 40 years and 68 cases (19%) are of 51–60 years of age category. Here under 18 years, screening was not done due to premature growth of the cervical canal will be obliterated. Table 2 shows the tabulation of age category with number of cases in each age group.

Age-wise distribution of clinical symptoms shows that out of total of 357 cases, excluding the 119 cases (33%) asymptomatic/routine screening, the most common symptoms presented were of white discharge per vagina (WDPV) with 57 cases (16%) commonly belong to 41–50 age group, 2nd most common was of pain in the abdomen 33 cases (9%), followed by HMB (heavy menstrual bleeding) 27 cases (7%) and fibroid 20 cases (6%). Tables 3-5 show the tabulation of age-wise distribution of clinical presentation.

In WDPV cases, most common were seen in 41–50 years of age, followed by 31–40 and 21–30 years of age group. In 2nd most common pain in abdomen cases, most common age group was of 31–40 years, followed by 41–50 years of age group. HMB or heavy menstrual bleeding is most common in 31–40 years, followed by 41–50 years of age group.

The results of cervical pap smears evaluations show that there were 234 cases of NILM (65%), inflammatory changes had 63 cases (17%), atrophy had 31 cases (8.68%), bacterial vaginosis had 20 cases (5.60%), atypical squamous cell of undetermined significance (ASC US) had 6 cases (1.68%), atypical glandular cell (AGUS) had 1 case (0.28%), low-grade squamous intraepithelial lesions (LSIL) had 1 case (0.28%), 1 unsatisfactory smear, and rest squamous cell carcinoma, adenocarcinoma, high-grade squamous intraepithelial lesions, AGUS had 0 cases. Table 6 shows the Bethesda system of reporting with results.

Table 7 shows the Bethesda system of reporting results in comparison with age group distribution. In NILM, out of 234 cases, the majority belong to the age group of 41–50 years, with 106 cases, 66 cases in 31–40 years, 26 cases in 51–60 years, 20 cases in 21–30 years, 11 cases in 61–70 years, and four cases belong to 71–80 years.

Out of total 357 cases, 63 cases were reported with inflammatory changes , Majority belongs to 41–50 years with 29 cases, followed by 19 cases in 31–40 years, and 12 cases in 21–30 years age group.

Out of total 357 cases, 20 cases were reported with bacterial vaginosis, Majority belongs to 51–60 years with 11 cases, followed by 5 cases in 21–30 years and four cases in 31–40 years of age group.

Out of total 357 cases, 31 cases were reported with atrophy-reported cases, Majority belongs to 51–60 years with 21 cases, followed by 4 cases in 31–40- and 41–50-years age group equally and two cases in 61–70 years age group.

There are only six reported cases in ASC US all in 51–60 years of age group and one case reported in LSIL in 61–70 years and one case reported in AGUS in 61–70 years of age group.

Table 2: Age group distribution based on cases

Age group	Number of cases	Frequency (%)
18–20	0	0
21–30	37	10
31–40	93	26
41–50	139	38
51–60	68	19
61–70	15	5
71–80	4	1
81–90	1	1
Total/frequency	357	100

DISCUSSIONS

The incidence and death of cervical cancer have successfully lowered due to cervical cancer screening. When the American Cancer Society (ACS) Guideline for the Early Detection of Cervical Cancer were last reviewed and updated in 2002, HPV DNA testing was included for the 1st time in those guidelines. High-quality screening with cytology (Pap tests), which detects 80–90% of cervical malignancies, has significantly decreased mortality from squamous cell cervical cancer.[6]

Table 3: Age-wise distribution of clinical presentation: Total 357

Age group	Asymptomatic	Bleeding PV	Heavy menstrual bleeding	Menorrhagia	Dyspareunia
18–20	3	0	0	0	0
21–30	12	1	1	0	2
31–40	34	2	13	3	2
41–50	46	8	11	8	1
51–60	18	3	2	0	0
61–70	4	1	0	0	0
71–80	2	0	0	0	0
81–90	0	0	0	0	0
Total/frequency	119/33%	15/4%	27/7%	11/3%	5/2%

Table 4: Age-wise distribution of clinical presentation: Total 357

Age group	PMB	Pelvic inflammatory disease	Wide discharge per vagina	Mass per vagina	Uterine prolapse
18–20	0	0	0	0	0
21–30	1	2	13	1	0
31–40	0	4	12	2	1
41–50	3	7	28	7	4
51–60	0	0	3	0	3
61–70	0	0	1	0	4
71–80	0	0	0	0	1
81–90	0	0	0	0	0
Total/frequency	4/1%	13/4%	57/16%	10/3%	13/4%

Table 5: Age-wise distribution of clinical presentation: Total 357

Age group	Fibroid	Post-coital bleeding	Pain in abdomen	Dysfunctional uterine bleeding	Uterovesical prolapse
18–20	0	0	0	0	0
21–30	1	4	5	0	0
31–40	4	0	13	4	1
41–50	13	1	10	3	4
51–60	1	0	3	4	4
61–70	1	0	2	0	4
71–80	0	0	0	0	1
81–90	0	0	0	0	0
Total/frequency	20/6%	5/1%	33/9%	11/3%	14/4%

The most recent data available indicates that 88% of cervical cancer-related deaths in 2008 took place in developing nations. According to statistics, India has a death rate of 15.2/100,000 people and an age-standardized incidence rate of 27/100,000.[7] There are numerous causes of the high incidence rate. Despite the creation of a comprehensive plan and government initiatives, there are no standard screening and awareness programs in India at the national or district levels.[7]

In the current study, majority were of 41–50 years of age with 139 cases (38%) similar to the study done by Priyadharisini *et al*. with 649 cases (39%), Saha *et al*. with 78 cases (27%), Kumari *et al*. with 265 cases (30%).[8,9,14] The mean age seen among the women was around 45 years. The current guidelines recommends, early screening from 21years can lead to early age detection and prediagnosis in cervical cancer screening.

Age-wise distribution of clinical symptoms shows that out of total of 357 cases, the majority of the patients came with complaints of asymptomatic/routine screening 119 cases (33%) similar to Umarani MK *et al*. with 624 case (44%), Patel *et al*. 538 cases (29%).[10,11]

Excluding the routine screening, the most common presenting symptoms in our study were of WDPV with 57 cases (16%) is similar to the study done by Patel et al. having 376 cases (20%), Gupta *et al*. with 90 cases (25%), Garg *et al*. 147 cases (44%) and Kumari *et al*. with 295 cases (33%).[11-14] The WDPV is clinical symptoms mostly associated with vaginal discharge due to PH irregularity due to bacterial commensal change, viral infections, or poor hygiene often associated with inflammation or reactive

Table 6: Bethesda system of reporting with results

Results	Total number of cases	Frequency (%)
Unsatisfactory	1	0.28
Negative for intraepithelial lesion/ malignancy NILM		
NILM	234	65
Inflammation	63	17.64
Organisms	20	5.60
Atrophy	31	8.68
Epithelial cell abnormalities		
Atypical squamous cell of undetermined significance	6	1.68
Atypical squamous cell of high-grade lesion	0	0
Low-grade squamous intraepithelial lesions	1	0.28
High-grade squamous intraepithelial lesions	0	0.00
Squamous cell carcinoma	0	0.00
Adenocarcinoma	0	0.00
Atypical glandular cell	1	0.28
Cases	357	100

NILM: Negative for intraepithelial lesion/malignancy

Table 7: Bethesda system of reporting with results with age group distribution

Age group	Unsatisfactory	Negative for intraepithelial lesion/malignancy NILM				Epithelial cell abnormalities						
		NILM	Reactive changes associated with inflammation	Organisms	Atrophy	Atypical squamous cell of undetermined significance	ASC – H	Low grade squamous intraepithelial lesions	High grade squamous intraepithelial lesions	Atypical glandular cell	Squamous cell carcinoma	Adenocarcinoma	Total
21–30	0	20	12	5	0	0	0	0	0	0	0	0	37
31–40	0	66	19	4	4	0	0	0	0	0	0	0	93
41–50	0	106	29	0	4	0	0	0	0	0	0	0	139
51–60	1	26	3	11	21	6	0	0	0	0	0	0	68
61–70	0	11	0	0	2	0	0	1	0	1	0	0	15
71–80	0	0	0	0	0	0	0	0	0	0	0	0	4
81–90	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	234	63	20	31	6	0	1	0	1	0	0	357

NILM: Negative for intraepithelial lesion/malignancy

Table 1. Current Cervical Cancer Screening and Surveillance Recommendations: US Preventive Services Task Force (USPSTF, 2018), American College of Obstetricians and Gynecologists (ACOG, 2016), American Cancer Society (ACS, 2020) and ASCCP (2019)

Target group	*Screening specifics*	*Guideline group, year of recommendation*		
Individuals at average risk		ACOG, 2016	USPSTF, 2018	ACS, 2020
	Age to start screening	21		25
	Age to end screening	65 if 3 consecutive negative cytology tests or 2 negative cytology plus HPV tests or 2 negative HPV tests (ACS) with the most recent within the prior 5 years and no abnormal tests within the prior 10 years (ACS) and no CIN2+ within the prior 25 years		
	Screening test options and intervals	Ages 21-65: Cytology alone every 3 years or Ages 21-29: Cytology alone every 3 years Ages 30-65: Cytology plus HPV testing every 5 years or Ages 21-29: Cytology alone every 3 years Ages 30-65: HPV testing alone every 5 years[a]		HPV testing alone every 5 years or Cytology plus HPV testing every 5 years or Cytology alone every 3 years
	Preferred strategies	Cytology plus HPV testing every 5 years	Cytology alone every 3 years or HPV testing alone every 5 years (equally preferred)	HPV testing alone every 5 years
	Prior hysterectomy with removal of cervix	Screening not recommended		
Individuals with an immunocompromising medical condition (*e.g.*, HIV infection, solid organ transplantation)[b]	Age to start screening	Within 1 year of onset of sexual activity or, if already sexually active, within the first year after HIV diagnosis but no later than 21 or Ages 21-29: cytology every year Ages 30-65: cytology plus hrHPV testing every 3 years	Not specified	Within 1 year of onset of sexual activity or, if already sexually active, within the first year after HIV diagnosis but no later than 21 or Ages 21-29: cytology every year Ages 30-65: cytology plus hrHPV testing every 3 years
	Age to end screening	None		None
	Screening test options and intervals	Ages 21-65: cytology every year; after 3 consecutive annual normal cytology test results, screening can be every 3 years		Ages 21–65: cytology every year; after 3 consecutive annual normal cytology test results, screening can be every 3 years
	Prior hysterectomy with removal of cervix	Not specified		Not specified
Individuals with in utero exposure to diethylstilbestrol		ACOG, 2016	USPSTF, 2018	ACS, 2020
	Age to start screening	Not specified	Not specified	
	Age to end screening	Not specified		
	Screening test options and intervals	Cytology alone annually		
	Prior hysterectomy with removal of cervix	Not specified		
Individuals who have received HPV vaccination		No changes to the screening approaches above		
		ASCCP 2019, ACOG 2020		
Individuals with a diagnosis of CIN2 or 3 (histologic HSIL) within the prior 25 years	Age to start screening	Not applicable		
	Age to end screening	May end at age 65 if CIN diagnosis ≥25 years ago and above criteria for ending screening met, otherwise continue screening past age 65. Continued screening for >25 years after diagnosis is acceptable if patient is in good health		
	Screening test options and intervals	Initial surveillance: HPV testing alone or cytology plus HPV testing at 6, 18 and 30 months or Cytology at 6, 12, 18, 24, and 30 months Long-term surveillance: HPV testing alone or cytology plus HPV testing cytology every 3 years or Cytology alone annually Continue for ≥25 years from the initial CIN diagnosis, even if extends past age 65 Routine screening can resume after the post-treatment surveillance period.		
	Prior hysterectomy with removal of cervix	HPV testing alone or cytology plus HPV testing every 3 years or Cytology alone annually Continue for ≥25 years from the initial CIN diagnosis, even if extends past age 65.		

Figure 1: The screening recommendations and guidelines have been published by the American College of Obstetricians and Gynecologists in 2016, 14 U.S. Preventive Services Task Force in 2018,19, and the American Cancer Society in 2020

changes of the squamous cell of cervical epithelium. In WDPV cases, most common were seen in 41–50 years of age, followed by 31–40 and 21–30 years of age group.

In our current study, 2nd most common presenting symptoms were of pain in the abdomen 33 cases (9%) similar to Garg *et al*. with 36 cases (10%), Kumari *et al*. with 177 cases (20%).[13,14] The pain the lower abdomen is mostly associated with the diffuse pain nociceptors around the cervix and uterus which give rise to diffuse pain around the pelvic regions carried out by pudendal nerve supply. In our study, pain in abdomen mostly associated with 31–40 years followed by 41–50 years of age group HMB with irregular menstrual bleeding seen with 27 cases (7%) is similar to the study done by Kumari *et al*. with 98 cases (11%), and Patel *et al*. with 309 cases (17%).[11,14] HMB or heavy menstrual bleeding is most common in 31–40 years, followed by 41–50years of age group.

In our current study, the results show 234 cases of NILM (65%) is similar to the studies done by Kumari *et al*. with 524cases (69.59%), Sachan *et al*. with 806 cases (48.84%) and Thushara *et al*. with 387cases with (41%), Figure 5 shows cervical pap smears with NILM.[14,15]

In our study, inflammation associated changes are of 63 cases with 17% is similar to the study done by Purohit *et al*. with 171 cases (21.27%), and Bamanikar *et al*. 877 cases with (23%). Figure 6 shows cervical pap smears with reactive changes with inflammatory changes.[16,17]

Organisms involved in the present study show out of total of 357 cases had 20 cases (6%) similar to Sabu *et al*. out of 150 cases 13 cases with (8.7%) having organism as candida species and study done by Malpani *et al*. with 684cases (9.88%) out of 6,921 total cases.[18,19] whereas in our study, most cases were of bacterial vaginosis with coccobacilli among with 20 cases reported. Majority belongs to 51–

Table 2. Comparison of 2012 and 2019 Consensus Recommendations for Management of Common Abnormalities (ASCCP)

Current HPV result	*Current Pap test result*	*Prior results*	*Management by 2012 guidelines*	*Management by 2019 guidelines*
Negative	ASC-US	Unknown or HPV-negative[a]	Repeat Pap plus HPV testing in 3 years	Repeat HPV test with or without concurrent Pap test in 3 years
Negative	LSIL	Unknown or HPV-negative[a]	Repeat Pap plus HPV testing in 1 year preferred, colposcopy acceptable	**Repeat HPV test with or without concurrent Pap test in 1 year**
Negative	ASC-H	Noncontributory	Colposcopy	Colposcopy
Noncontributory	AGC	Noncontributory	Colposcopy	Colposcopy
Positive	NILM	Unknown or HPV-negative[a]	Repeat Pap plus HPV testing in 1 year	Repeat HPV test with or without concurrent Pap test in 1 year
Positive	NILM	HPV-positive[b]	Colposcopy	Colposcopy
Positive for genotype HPV16 and/or HPV18	NILM	Noncontributory	Colposcopy	Colposcopy
Positive for genotype HPV16 and/or HPV18	ASC-US or LSIL	Noncontributory	Not applicable, genotyping not recommended for ASCUS/LSIL in 2012	**Colposcopy**
Positive	ASC-US or LSIL	Unknown or HPV-positive	Colposcopy	Colposcopy
Positive	ASC-US or LSIL	Negative screening results with HPV testing or HPV plus Pap testing within past 5 years	Colposcopy	**Repeat HPV test with or without concurrent Pap test in 1 year[c]**
Positive	ASC-US or LSIL	Colposcopy confirming the absence of high-grade lesion within the past year	Colposcopy	**Repeat HPV test with or without concurrent Pap test in 1 year[c]**
Positive	ASC-H	Noncontributory	Colposcopy	**Colposcopy or expedited treatment**
Positive: untyped Positive: genotype other than HPV 16 Negative	HSIL	Noncontributory	Colposcopy or expedited treatment	Colposcopy or expedited treatment
Positive: genotype HPV16	HSIL	Noncontributory	Colposcopy or expedited treatment	**Expedited treatment[d]**

Figure 2: The 2019 ASCCP risk-based management consensus guidelines define a new paradigm for managing cervical cancer screening test abnormalities

60 years with 11 cases, followed by five cases in 21–30 years and four cases in 31–40 years of age group. Figure 7 shows cervical pap smears with bacterial vaginosis.

Meanwhile, in Emegoakor *et al*., out of a total of 285 cases, 254 cases were negative for BV, and only 31 cases (10%) were similar to our current study; however, their study was focused around bacterial vaginosis; suspected cases with WDPV were included in the study.[20]

In our study, among all the age groups screened, the atrophy cases reported were of 31 cases (8%) out of 357 total cases is similar to the study done by Sood *et al*. with 16 cases (14%) and Divya *et al*. with 138 cases (19%).[21,22] Majority belongs to 51–60 years with 21 cases, followed by four cases in 31–40- and 41–50 years age group equally and two cases in 61–70 years age group.

In India, with a population of 511.4 million women ages 15 years and older who are at risk of developing cervical cancer, cervical cancer is 2nd most common and shares 18% among all female cancers reported in India. Current estimates indicate that every year 123,907 women were diagnosed with cervical cancer and 77,348 die from the disease. About 5.0% of women in the general population are estimated to harbor cervical HPV-16/18 infection at a given time, and 83.2% of invasive cervical cancers are attributed to HPVs 16 or 18.[23]

Cervical Screening Guidelines[24]

More than half of cases of cervical cancer were found in patients who have not undergone regular screening, making participation in screening a crucial part of cancer prevention and control. The annual cervical cytology (Pap test) is recommended for all patients frequent screening as well as the addition of oncogenic HPV testing. Figure 1 shows the screening recommendations and guidelines which have been published by the American College of Obstetricians and Gynecologists in 2016 , U.S. Preventive Services Task Force recommendations for cervical screening(UPSTF)in 2018 and ACS in 2020.

Surveillance Following Abnormal Test Results[24]

For patients with recent abnormal screening test results, repeat testing is recommended at shorter intervals than those used for screening. Figure 2 shows the 2019 ASCCP Risk-Based Management Consensus Guidelines define a new paradigm for managing cervical cancer screening test abnormalities. Colposcopy should include at least one biopsy of all acetowhite or suspicious areas. If the

entire transformation zone is visualized and no lesions are present, biopsies may be deferred in women with low prior risk (LSIL, ASC US or NILM cytology, no HPV16) risk stratification now accounts for whether a patient had abnormal results, which increase risk or had documented negative HPV screening test results, which decrease the risk. Figures 8 and 9 shows features of LSIL and HSIL with perinuclear halos, high N: C ratio, moderate cytoplasm.

Risk Modifications with Early Diagnosis and Changes[24]

A patient's estimated chance of now having cervical pre-cancer is significantly reduced if they have a history of normal screening results, with the most recent being a negative HPV test or contest within the last 5 years. When a previous colposcopy, during which no CIN2 was found, precedes a low-grade abnormal Pap result (ASC US, LSIL), estimated risk is also reduced as long as the colposcopy was carried out in accordance with the standards outlined above and took place within the previous approximately 1 year is given in Figure 3. Contrarily, risks are increased in patients who have a history of high-grade Pap tests, high-grade cervical biopsy results, or positive HPV tests. Once HPV test results and prior screening history are factored into the risk estimation, other factors including age, smoking, and hormonal contraception are usually unaffected.

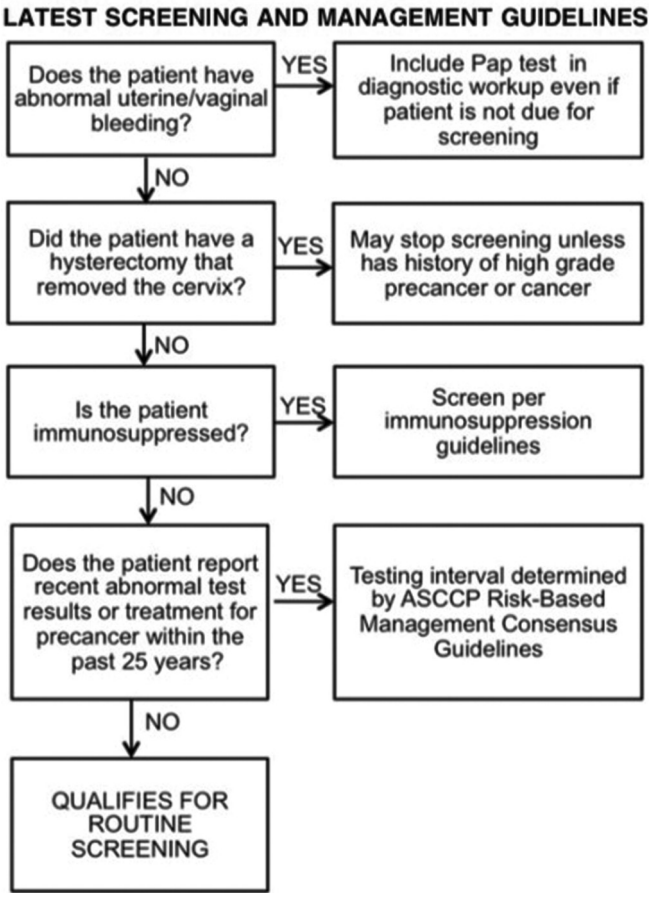

Figure 3: Latest screening and guidelines with history of normal screening results, with the most recent being a negative human papillomavirus test or contest within the past 5 years

Cervical Screening and Vaccine Program in India[25]

Cervical screening program is introduced by the government of India but till now no HPV vaccination is been introduced however HPV vaccination introduction and pilot phase has just began with study shows HPV 16, and 18 alone or in coinfection with each other were found in 76.3% of cases in a multicentric investigation in India, while HPV 33 was the 3rd most prevalent type. At present, two prophylactic HPV vaccines, that is, the quadrivalent vaccine "Gardasil" and the bivalent vaccine "Cervarix" are given in Figure 4.

CONCLUSIONS

After analyzing and reviewing all the results, we can conclude that premalignant and malignant lesion is uncommon in our institute. However, earlier screening of the cases with ASCUS, LSIL, and AGUS gave us a lead for the earlier diagnosis and treatment of it. Pap smear testing is a very useful, simple, economical, and safe tool for detecting precancerous cervical epithelial lesions. It should be established as a routine screening procedure to reduce the treatment burden, morbidity, and mortality.

A single negative report of HPV testing is alone associated with a low risk of developing CIN3 in the next 5 years as an assurance to it. Risk-based management principles are intended to concentrate attention on individuals with elevated risk while minimizing needless operations in low-risk patients. The primary actions to lower the frequency of invasive cervical cancer are increasing test participation, establishing adequate follow-up, and using risk-based strategies.

Table 1: HPV vaccines.

HPV vaccine	Protection against HPV genotypes (amount)	Adjuvant	Vaccination age	Schedule	FDA approval
Gardasil	6, 11, 16, 18 (20/40/40/40 mcg)	Amorphous aluminium hydroxyl phosphate sulphate	Routine vaccination in girls of 11-12 years. Health provider's discretion between 9 and 11 years. Catch-up vaccination permitted till 26 years	0, 2, and 6 months	Approved
Cervarix	16, 18 (20/20 mcg)	Aluminum hydroxide and monophosphoryl lipid A		0, 1, and 6 months	

Figure 4: Cervical screening program is introduced by the government of India under FDA approval

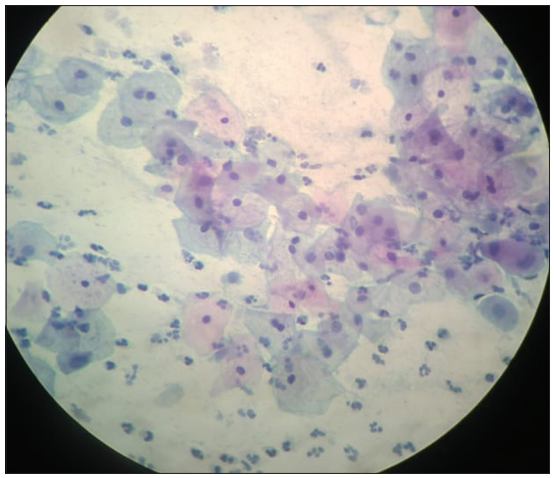

Figure 5: Negative for intraepithelial lesion or malignancy

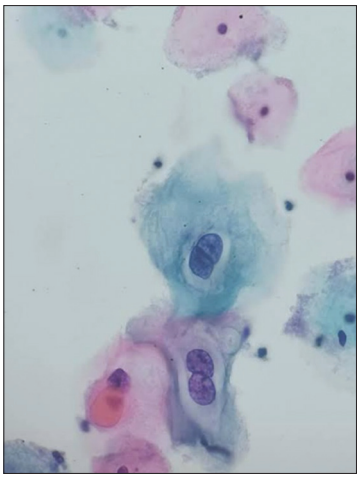

Figure 8: Low-grade squamous intraepithelial lesions

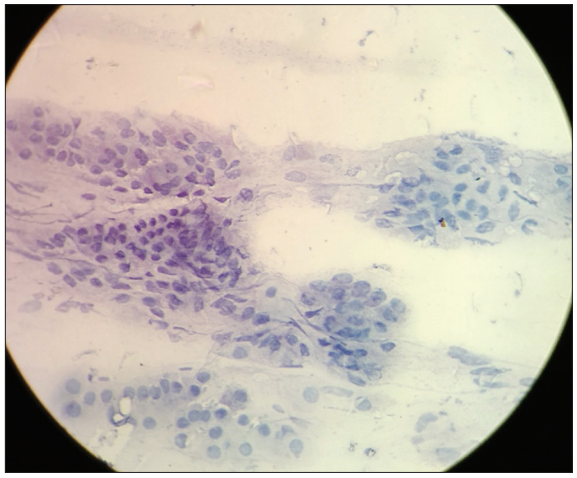

Figure 6: Negative for intraepithelial lesion/malignancy with Inflammation associated with reactive changes

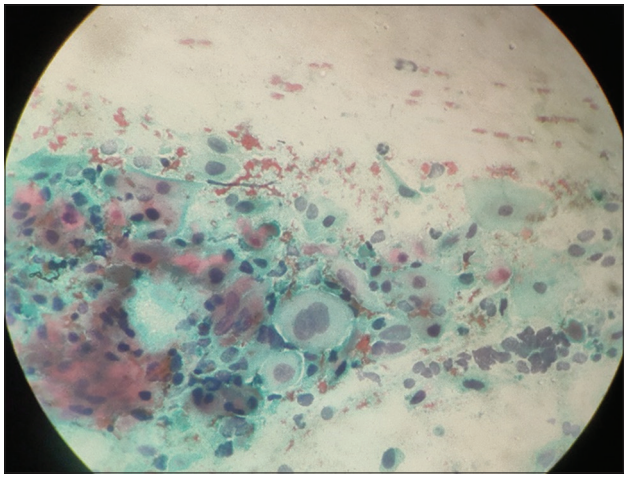

Figure 9: High-grade squamous intraepithelial lesions

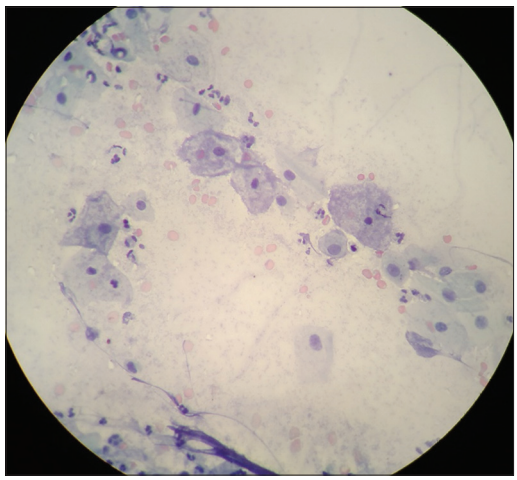

Figure 7: Organisms: Bacterial vaginosis

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