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A STUDY ON WOMEN ATTENDING GYNAECOLOGY OUTPATIENT DEPARTMENT UNDERGOING PAP SMEAR EXAMINATION AND FOLLOW-UP OF ABNORMAL PAP SMEAR USING COLPOSCOPY

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Abstract

Cervical cancer is the fourth most common cancer in women. In 2018, an estimated 570,000 women were diagnosed with cervical cancer worldwide and about 311,000 women died from the disease. It is the most common genital cancer among women in India. Pap smear is very useful in detecting abnormal cells and colposcopy locates the abnormal lesion when pap smear is abnormal.

The objective of the study is to evaluate the women coming to the Gynaecology Outpatient Department undergoing pap smear and follow-up of abnormal smear using colposcopy.

103 women in the age group of 26-75(50.29±2.56) years who attended the gynecology outpatient department (GOPD)at a tertiary care teaching hospital in central Kerala with various clinical symptoms were screened by pap smear testing over two weeks. The smear was obtained using an Ayre spatula and it was spread over a glass slide which was placed in 95% ethyl alcohol in a coplin Jar. It was then sent to the department of pathology for cytopathological examination followed up using colposcopy and biopsy was done in the cases with abnormal colposcopy.

Among these women,46.6 percentage have a normal pap smear 47.6% have an abnormal smear, and 5. 8 % have an atrophic smear. Among abnormal smear 4.8% are ASCUS, 1.9% LSIL, 0.97% SCC, 0.97% high-grade adenocarcinoma, and 37.86% inflammatory smears.

As per International guidelines, women with abnormal pap smear tests should undergo colposcopy and those with abnormal colposcopy findings should undergo biopsy. Awareness about cancer should be increased and women should be motivated to undergo screening.

Keywords: Carcinoma cervix, Colposcopy biopsy, Cytopathological examination Evaluation, Pap Smear,

I. Introduction

Carcinoma cervix affects the lowermost part of the uterus called the cervix. In certain parts of India, it remains still more common than carcinoma breast; however, in most of the large Metropolitan cities in India, it now ranks second to carcinoma breast among cancers in women [III].

Despite being a highly preventable cancer in the year 2020, 604127 women reported cervical cancer and 341831 women died from the disease globally [V]. Annually 569847 new cervical cancer cases are diagnosed globally [VI]. In India alone, 13000 new cases occurred with a death rate of 70,000 cases every year [X].

Carcinoma cervix is more common in cases with multiple sexual partners, early coitus, high parity, and low socio-economic group. It is also seen in women who smoke and use oral contraceptive pills and among immunocompromised there is a positive relationship between high-risk HPV subtypes and cervical neoplasia. Among 20 subtypes that infect the genital tract, 10 subtypes are of intermediate or high risk for neoplasia. Two of these, HPV 16 and 18 are officially designated as human carcinogens [II].

India has had a national program for cancer since 1975. In 2010 cancer control became a part of the more comprehensive National Program for Prevention and Control of Cancer NPCDCS [I].

The disease can be prevented by a routine pap smear test which can detect premalignant lesions of the cervix. The pap smear is a screening test that can detect about 98% of cancer of service and about 70% of endometrial cancer [XIV].

Colposcopy is used to identify the extent of the lesion when a pap smear detects abnormal cells. It also locates abnormal areas and when transformational is completely visualized biopsy of atypical areas is taken for diagnosis. This screening for cancers and precancerous lesions is critical in a developing country like India to ensure that women receive appropriate and timely diagnostic and treatment services. This study aims to assess the

women using pap smear and follow up on abnormal pap smear using colposcope and biopsy in indicated cases

II. Aims and objectives

- To evaluate women attending GOPD with various clinical symptoms using pap smear.
- To follow up evaluation of abnormal pap smear with colposcopy and biopsy.

III. Review of literature

1. A comparative study of pap smear and colposcopy guided biopsy in the evaluation of unhealthy cervix- Meenakshi Venkatesh Usha Devi Gopalan The Department of Obstetrics and Gynecology, Shri Sathya Sai Medical College and Research Institute, Tamil Nadu, India. The study included 110 married women aged 20-65 years, 53.6 percentage women had an inflammatory smear, 34.5% of women had normal, 0.1% had bacterial vaginosis, 6.4% LSIL and 4.5% had HSIL association of perhaps where with histopathology is statistically significant (p-value less than 0.001)

2. A study on cervical cancer screening using pap smear test and clinical correlation Push Lata Sachan, Meenakshi Singh and Rekha Sachan -Asia Pacific Journal of Oncology Nursing. In the study, the pap smear test was negative for malignancy in 48. 84% and 42.66% had infection or inflammation. ASCUS, LSIL, and HSIL were detected in 2.9% 5.09%, and 0.48% respectively

3. A study on cervical cancer screening in symptomatic women using pap smear in a tertiary care hospital in a rural area of Himachal Pradesh, India- Ashok Verma, Suresh Verma, Shivani Vashisht, Amrita Singhal. The majority of women included in the study were in the age group of 31 to 40 years with a mean age of 38.6 years plus or minus 6.29. 200 women in study 1 1 2 (56%) smear were reported as negative for intraepithelial lesion or malignancy, 65 (32.5%) inflammatory smear 11 5.5% LSIL and 5 (2.5%) HSIL.

Among 41 cervical biopsies, 13 (31.7%), 6 (14.6%)HSIL immature metaplasia 5 (12.1%) 4.8% leukoplakia 3 (7.3%), and cervicitis12 (29.2%)

Primary screening of cervical cancer by pap smear in women of reproductive age group- Ruchi Mishra et al. J family med prim care 2022 September. In this study, most of the abnormality of Epithelial cells was found in the age of 31 to 50 years. Women found negative for intraepithelial neoplasia were 82. 94 percent by 13.36% had an inflammatory smear 0.92 percentage had ASCUS, LSIL in 2.78%, and no women had HSIL.

A 2-year cross-sectional study was conducted on the clinical correlation of CC screening using a pap smear test on 200 married women 21 to 60 years old. In this study, 36% had

no remarkable pathology, inflammatory evidence was seen in 32% scene in 19% LSIL in 7.5% and HSIL in 5.5%

4. Diagnosis of the cervical lesion by colposcopy VIA pap smear test and the correlation with histopathology in a tertiary level laboratory in Chattogram, Bangladesh. In this cross-sectional study mean age of study cases was 41.2 + – 11.5 years. VIA test was positive in 98 study cases (68.5 %). On colposcopy, 80 cases (55.9%) showed neoplastic proliferation, and 63 cases (14%)were non-neoplastic. Most of the biopsies were diagnosed as CIN-1.

IV. Materials and methods

This prospective study was carried out over 2 weeks at The Department of Obstetrics and Gynecology in a tertiary care teaching hospital in central Kerala, India.
Since the institution lacks HPV screening facilities pap smear was used as a screening test. We screened 103 women during two weeks who visited gynecology OPD with various complaints like heavy bleeding, mass per vagina, itching and burning abnormal Pain, Intermenstrual bleeding, post-menopausal bleeding, secondary amenorrhea, abdominal pain, and back pain, and also those who came full routine health check-up. A detailed history was taken which included chief complaints and findings per speculum and vaginal examinations. Patients were placed lithotomy position. Then a sterile self-retaining Cusco's speculum was inserted into the vagina, the posterior vagina wall was retracted posteriorly and anterior vaginal anteriorly to allow proper visualization of the vaginal wall and cervix.

A sample was taken from the ectocervix by rotating the Ayre spatula 360 degrees and also with endocervical cytobrush by rotating 180 degrees. The sample was quickly smeared onto a labeled glass slide and fixed with 95% ethyl alcohol in a Coplin Jar. These were sent to the Department of Pathology for cytopathological examination. The laboratory reported the examination results according to The 2014 Bethesda system for reporting cervical cytology. [VII]

THE 2014 BETHESDA SYSTEM FOR REPORTING CERVICAL CYTOLOGY

The system has five components of a Pap smear report – specimen type, adequacy, general category, interpretation, and adjunctive testing. Two additional components may be added where applicable – computer-assisted interpretation of Pap smear and educational notes and comments appended to the cytology report.

Specimen type

Conventional smear (Pap smear)/liquid-based preparation/ other.
Specimen adequacy

Satisfactory for evaluation (describe presence/absence of endocervical/transformation zone components and any other quality indicators – partially obscuring blood, inflammation, etc.).
Unsatisfactory for evaluation (specify the reason)
Specimens rejected/not processed (specify reason)
Specimens processed and examined, but unsatisfactory for evaluation of epithelial abnormality because of (specify the reason).
General categorization (optional)
Negative for intraepithelial lesion or malignancy (NILM). Other: Refer to interpretation/result (explained later).
Epithelial cell abnormality: Refer to interpretation/result. Specify squamous/glandular as appropriate (explained later).

Interpretation/result

NILM when there is no cellular evidence of neoplasia, this term should be stated in the general categorization section or interpretation/result section of the report – whether or not there are organisms or other non-neoplastic findings.

Non-neoplastic findings (optional to report).

Non-neoplastic cellular variations

Squamous metaplasia

Keratotic changes

Tubal metaplasia

Atrophy

Pregnancy-associated changes.

Reactive cellular changes associated with

Inflammation including repair

Lymphocytic cervicitis

Radiation

Intrauterine contraceptive device (IUD).

Glandular cell status post-hysterectomy

Organisms

Trichomonas vaginalis

Fungal organisms are morphologically consistent with Candida spp.

Shift in flora suggestive of bacterial vaginosis

Bacteria are morphologically consistent with Actinomyces spp.

Cellular changes consistent with herpes simplex virus

Cellular changes consistent with cytomegalovirus. Other

Endometrial cells (in a woman >45 years of age), (specify if negative for SIL).

EPITHELIAL CELL ABNORMALITIES

Squamous cell

Atypical squamous cells (ASC)

Of undetermined significance ASC of undetermined significance

Cannot exclude HSIL atypical squamous cells, cannot rule out HSIL (ASC-H)

LSIL (encompassing HPV/mild dysplasia/CIN 1)

HSIL (encompassing moderate and severe dysplasia/ CIS/CIN 2 and CIN 3) With features suspicious for invasion (if suspected) of Squamous cell carcinoma.

Glandular cell

Atypical

Endocervical cells (NOS or specify)

Endometrial cells (NOS or specify)

Glandular cells (NOS or specify)

Atypical

Endocervical cells (Favor neoplastic)

Glandular cells (Favor neoplastic)

Endocervical Adenocarcinoma in situ

Adenocarcinoma

Endocervical

Endometrial

Extrauterine

NOS.

OTHER MALIGNANT NEOPLASMS (SPECIFY)

Adjunctive testing – Brief description and report

Computer-assisted interpretation of cervical cytology – specify device and result (where applicable)

Educational notes and comments appended to cytology report – optional concise suggestions, consistent with clinical follow-up guidelines may be mentioned (if considered necessary)

Patients with abnormal pap smear tests including ASCUS, LSIS, HSIL, SCC, and adenocarcinoma underwent colposcopic examination. The patient was made to lie in the lithotomy position. The speculum was inserted into the cervix. The cervix and vagina were swabbed. The cervix was viewed after applying acetic acid and then lugol's iodine. Colposcopy-guided biopsy was done in abnormal cases. Treatment was done according to the disease stage.

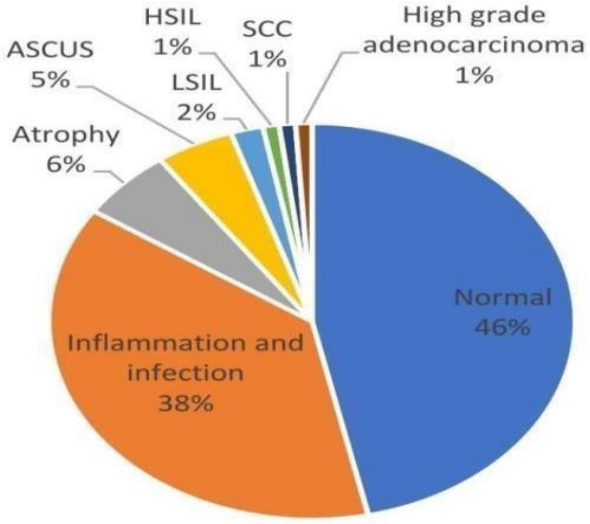
V. Results

1. Normal and abnormal smears

In this study, 103 women, 46.6 % have a normal pap smear. 47.6 % have abnormal smear and 5.8 % have atrophic smear. Among the abnormal smear, 5(4.8%) are ASCUS, 2(1.9%) are LSIL, 1(1.97%) are HSIL, 1(0.97%) are SCC and 1(0.97%) high grade adenocarcinoma. Inflammatory smear 37.86% (39) with 2.9% having Candida species. 6 (5.8%) smears are atrophic.

Table 1: Pap smear results

Impression	Percentage
Normal	46.6%
Inflammation and infection	37.86%
Atrophy	5.8%
ASCUS	4.8%
LSIL	2%
HSIL	1%
SCC	1%
High-grade adenocarcinoma	1%

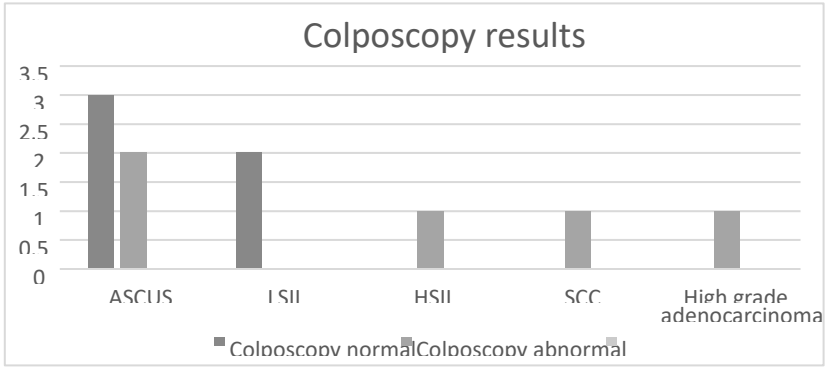


Results of the pap smear

Table II: Colposcopy results of ASCUS, LSIL, HSIL, SCC, and high-grade adenocarcinoma

	Colposcopy normal	**Colposcopy abnormal**
ASCUS	3	2
LSIL	2	
HSIL		1
SCC		1
High-grade adenocarcinoma		1

Colposcopy was normal in 3 cases of ASCUS and 2 cases of LSIL. Normal endoscopy showed a complete white area with acetic acid and a complete brown area with lugol's iodine.

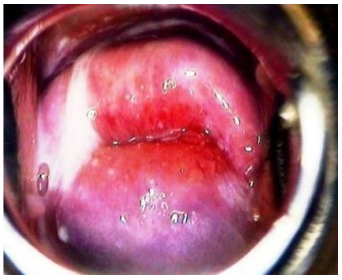


Colposcopy results

a) Flat acetowhite epithelium was present in one case of ASCUS with an ulcer which was followed by biopsy. Endocervical curettings, endometrial curettings, and cervical biopsy specimen was taken. Endocervical curetting microscopically showed cells with moderate pleomorphism. Stratified squamous epithelium with focal dysplasia, scattered inflammation, and blood clots. Hyperplastic stratified squamous epithelium with squamous metaplasia and moderate dysplasia. Few endocervical cells and glands are present.

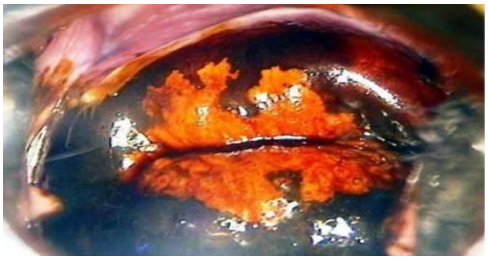
LSIL

After normal saline



After acetic acid

After Lugol's iodine



- Endometrial curettings – CIN 2.
- Cervix biopsy – hyperplastic squamous epithelium Cervix showing squamous metaplasia with focal CIN 2

b) The second case of ASCUS on colposcopy with lugol's iodine application showed a colour change in the anterior and posterior lip. It showed decubitus ulcer, TZI. Uterine and cervical biopsy showed cervix with ulceration and reactive atypia, squamous metaplastic change, hyperkeratosis and parakeratosis of squamous epithelium, and chronic cervicitis. Myometrium is unremarkable. Endometrium showed cystic atrophy.

c) HSIL on colposcopy showed abnormal staining with lugol's iodine, TZI, and dense acetowhite lesions.

Histopathology on endometrial biopsy and cervical polyp Scanty benign endometrial tissue and fragments of squamous cell carcinoma.

After normal saline

After acetic acid

After Lugol's iodine

d) SSC on colposcopy showed a non-uniform staining mosaic pattern at transformation soon and surface vessels were absent with acetic acid application. Histopathology with cervical punch biopsy's specimen showed fragments from the ectocervix with strips of markedly dysplastic epithelium and a neoplasm composed of cells arranged in sheets and

nests. Moderate nuclear pleomorphism with occasional multi-nucleated and bizarre cells. Mitotic figures(12 to 13 / 10 HPF) keratin pearl, foamy macrophages, and lymphocytic infiltration suggest moderately differentiated squamous cell carcinoma.

After normal saline.

After acetic acid

e) High-grade adeno carcinoma on colposcopy at transformation zone showed- negative staining of the lesion, individual vessels were dilated and arranged shortly at transformation with rolled margin, endometrial biopsy showed a tumor composed of solid sheets and multiple papillae with thin fibrovascular core popular line by columnar cells with pseudostratification. The tumor cells exhibit pleomorphic nuclei with clumped course chromatin irregular nucleoli and several typical mitotic figures in favour of endometrial adenocarcinoma -high grade.

After normal saline

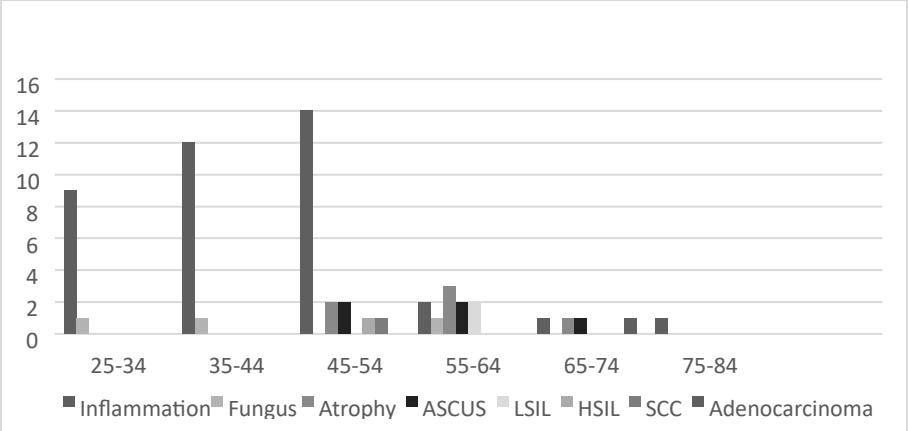
with a green filter

After acetic acid

Table III: Correlation of age group and pap smear findings

Age group	Inflammation	Fungus	Atrophy	SCUS	LSIL	SIL	CC	denocarcinoma
25-34	9	1						
35-44	12	1						
45-54	14		2	2		1	1	
55-64	2	1	3	2	2			
65-74	1		1	1				1
75-84	1							

Most of the abnormal smears are in the age group of 45 to 54 comprising 14 inflammatory smears, 2 atrophic smear, 2 ASCUS,1 HSIL, and 1 SCC. Inflammation is present in all age groups with the highest among pre-menopausal women below the age of 55. Carcinomatous lesions are absent at both extremes of age.



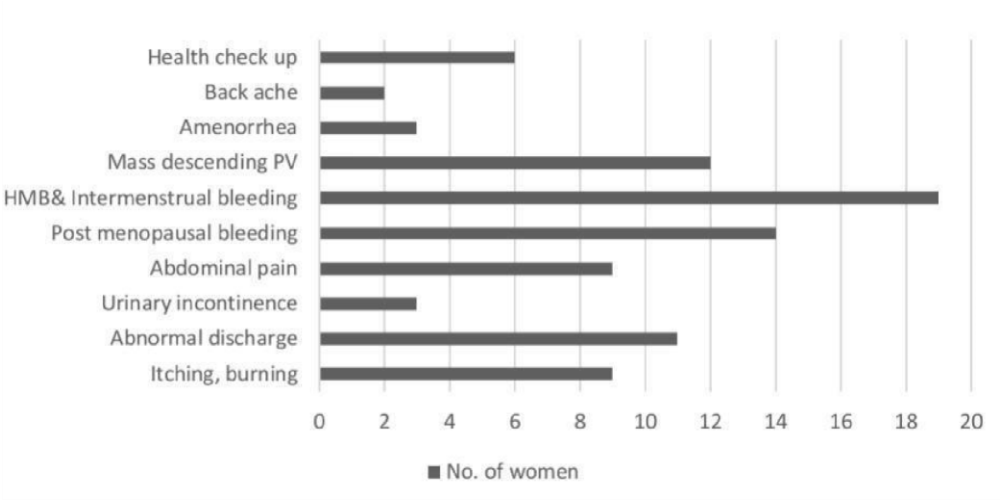
Pap smear findings in various age groups

Table IV : Symptoms and clinical conditions of women attending GOPD

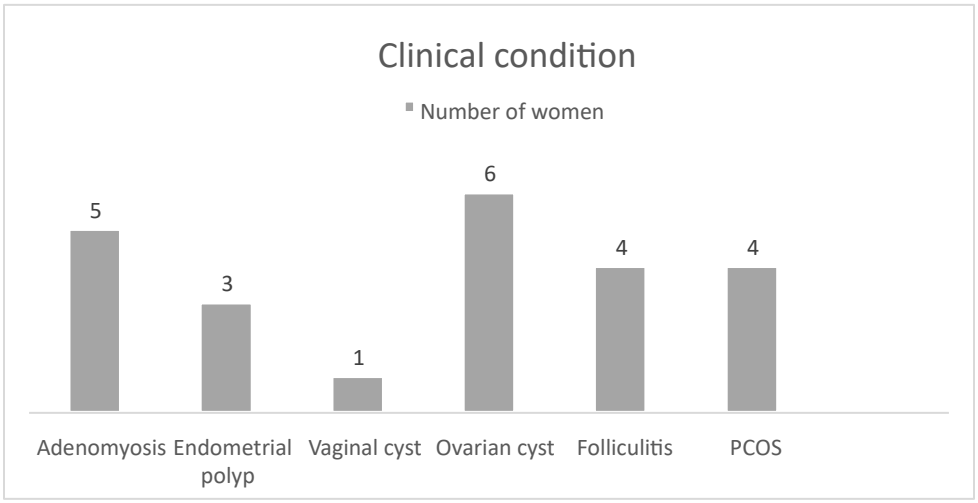
Symptoms	No. of women
Itching, burning	9
Abnormal discharge	11
Urinary incontinence	3
Abdominal pain	9
Post-menopausal bleeding	14
Amenorrhea	3
Backache	2
Health checkup	6

Table V : Clinical conditions in women attending GOPD

Clinical conditions	Number of women
Adenomyosis	5
Endometrial polyp	3
Vaginal cyst	1
Ovarian cyst	6
Folliculitis	4
PCOD	4



Presenting symptoms in women

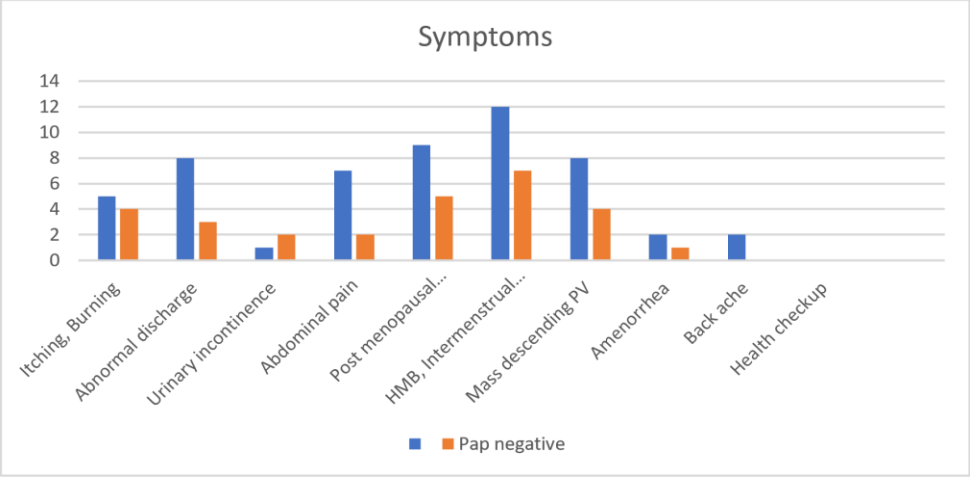


Various clinical conditions in women attending GOPD

Most of the patients presented with abnormal bleeding like heavy menstrual breeding, Intermenstrual bleeding, and post-menopausal bleeding (32.32%). Only 5.8% attended the OP for routine checkups.

Table VI : Correlation of clinical symptoms with findings

Symptoms	Pap positive	Pap negative
Itching, burning	5	4
Abnormal discharge	8	3
Urinary incontinence	1	2
Abdominal pain	7	2
Post menopausal bleeding	9	5
HMB, Intermenstrual bleeding	12	7
Mass descending PV	8	4
Amenorrhea	2	1
Back ache	2	Nil
Health checkup	Nil	6



Normal and abnormal smears associated with various clinical symptoms

VI. Discussion

Incidence and prevalence of cervical carcinoma is quite high especially among underdeveloped countries because of the inadequacy in the implementation of prevention and control program.

WHO has launched updated guidelines for screening and treatment of cervical precancer as a global strategy towards the elimination of cervical cancer [XII]

The Target of the strategy are:

- By 2030,90% of girls should be fully vaccinated with HPV vaccine by 15 years of age
- 70% of women should be screened using a high-performance test by age 35 and again by the age of 45
- 90% of those identified with cervical disease should receive appropriate treatment

According to the American Cancer Society (2012), the pap smear test is a routine cancer screening method that should be done every three years, and pap smear with an HPV DNA test is recommended as a screening method every five years [XIII] [IV]

In This study most of the abnormal cytology was detected in the age group of 35 to 65 years, abnormal smears where least at both extremities of age.

In a study done on cervical cancer screening using pap smear test and clinical correlation by Push Lata et al, most of the abnormal cytology was in the age group of 40-60 years [XI]. In primary screening of survival cancer done by Ruchi Mishra et all most of the abnormal cytology was in the age range of 31 to 50 years [VIII].

In this study, 46.6% had a normal pap smear and 47.6% had smear with inflammation, infection, and atrophy. These results are similar to the study done by push lata, where 48.84% had a normal smear and 42.66% had inflammation or infection [XI]

Among the abnormal smear 4.8% are ASCUS, 1.9% are LSIL, .97% SCC, and 0.97% are high-grade adenocarcinoma

In another study conducted tertiary-level care unit of Himachal Pradesh India LSIL was 5.5% and HSIL was 2.5% [I]

In a comparative study by pap smear and colposcopy done by Meenakshi Venkatesh and Ushadevi Gopalan in Tamil Nadu, India,53.6% had an inflammatory smear, 6.4% had LSIL and 4.5% had HSIL [VI]

Another study at a tertiary-level hospital in India showed the presence of ASCUS at 2.9%, LSIL 5.09%, HSIL 0.48% [I]

In this study most of the women who presented to the GOPD had abnormal bleeding like Intermenstrual bleeding and post-menopausal bleeding (13.7%) other major symptoms were mass dissenting per vagina (11.76%) abnormal discharge(10.78%), itching and burning (8.82%) and abdominal pain (8.82%). Only 5.8% of women attended routine health checkups.

8 cases attended were having fibroid,6 cases of ovarian cyst, 5 cases of adenomyosis, 3 polyp cases,4 cases of folliculitis, and 4 cases of PCOS.

In the study done by Japhia David et al on comparative analysis of visual inspection with acetic acid, cervical pathology, and histopathology abnormal bleeding including heavy menstrual bleeding, post-menopausal bleeding, Intermenstrual bleeding, and post-coital bleeding was the most common presenting complaint which was followed by abnormal discharge, which is similar to the study.

Even after more than a decade since the introduction of HPV vaccines, the incidence and prevalence of cervical cancer in India is quite high. Studies have reported that India's overall knowledge and awareness about survival cancer HPV and HPV vaccination is poor [VIII]. Proper planning and implementation of health programs including the WHO global strategy for elimination of cervical cancer will reduce the burden of cervical cancer in India.

VII. Summary

Carcinoma cervix is the most common genital cancer among women in India. Especially it is common among women with multiple sexual partners, high parity, and low socio-economic groups Despite being a highly preventable condition that can be detected early and treated, India alone has a death rate of 70,000 cases every year.

The objective of this study is to evaluate the women coming to the Gynaecology outpatient department using pap smear and following up on abnormal pap smear using colposcopy for early detection and management of cervical cancer. This study was done on 103 women in the age group of 26-75(50.29$\pm$2.56) years at a tertiary care teaching hospital in Central Kerala. Since the institution lacks HPV screening, pap smear was used as the screening test. Women presented with various symptoms were screened using pap smear over two weeks. Those having abnormal smear reports were followed up with colposcopic biopsy and cytopathology.

Women presented to OP with various symptoms like itching and burning sensation, abnormal discharge, urinary incontinence, abdominal pain, post-menopausal bleeding, amenorrhea, and back ache. Only 6 women came for health checkups. Out of 103 women,46.6% have normal pap smear, 47.6% have abnormal smear and 5.8% have atrophic smear. Among abnormal smears,4.8% are ASCUS,1.9% LSIL, 0.97% SCC, 0.97%

high-grade adenocarcinoma, and 37.86% inflammatory smears. Most of the abnormal smears are in the age group of 45-54 comprising 14 inflammatory smears, 2 atrophic smears, 2 ASCUS,1 HSIL and 1 SCC. Carcinomatous lesions are absent at both extremes of age.

The incidence and prevalence of cervical carcinoma are high, especially among underdeveloped and developing countries.WHO has launched updated guidelines for screening and treatment of cervical precancer. This global strategy towards the elimination of cervical cancer should be strengthened from the primary health care level. Inadequate awareness of screening and prevention is a major concern. Proper and timely execution of prevention and control programs can significantly improve the prognosis.

VIII. Conclusion

Pap smear testing is a very effective simple and economical tool with high specificity in detecting cervical epithelial lesions. Colposcopy reduces false positive outcomes by identifying normal areas, abnormal areas, and extension of the lesion and also facilitates biopsy of abnormal areas for histologic diagnosis.

Women should undergo a colonoscopy-guided biopsy in indicated cases. In this study of 103 women, 46.6% have normal pap smear, 47.65% abnormal smear with infection, inflammation, and cellular abnormalities, and 5. 8% have atrophic smear.

IX. Recommendation

The majority of women attending outpatient clinics are not aware of cervical cancer screening. Since early detection and treatment highly reduces the morbidity and mortality caused by the disease, the community should be enlightened about genital hygiene, pap smear tests, colposcopy, and biopsy along with its aim and frequency of testing through educational activities, behavioral change communication, and mass media programs.

Conflict of interest

There was no relevant conflict of interest regarding this paper

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