ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation Journal Home Page: https://ijrps.com

Comparison of downstaging, pap smear, colposcopy and colpo-directed biopsy in the detection of cancer cervix

Nithya R[1], Rajalekshmi M[2], Nasreen Banu M[*2]

[1]Department of Obstetrics and Gynaecology, ESIC Medical College & PGIMSR, K.K.Nagar, Chennai, Tamil Nadu, India
[2]Department of Obstetrics and Gynaecology, Saveetha Medical College & Hospital, Chennai, Tamil Nadu, India

Article History:

Received on: 18 Jun 2022
Revised on: 28 Jul 2022
Accepted on: 06 Aug 2022

Keywords:

Pap smear,
Colposcopy,
Biopsy,
Cancer

ABSTRACT

Cancer cervix accounts for 80% of female genital cancer and is the most common genital cancer. India accounts for 27% of the incidence all over the world. The mortality due to cancer cervix is 14.7%. To assess the reliability of downstaging in early detection of the precancerous lesion. To correlate the findings in 110 women with unhealthy cervix by cytology, colposcopy directed biopsies. The work was carried out continuously over one year and 2 months. 110 women were evaluated. When Cytology was compared with Colposcopy, Cytology had only 38.8% sensitivity. Cytology showed higher specificity (98.4%). 95% of the patients with abnormal Cytology had abnormal colposcopy. Colposcopy showed a sensitivity of 96.3% and a specificity of 72.3%. Sensitivity was more than a Pap smear, but specificity was less than a pap smear. Thus, colposcopy offers an excellent tool for evaluating cervical lesions. It is an easy and perspective method, and its importance lies in teaching, diagnosis and management of cervical lesions, neoplastic and non-neoplastic.

[*]Corresponding Author

Name: Nasreen Banu M
Phone:
Email: nasreen3294@gmail.com

ISSN: 0975-7538

DOI: https://doi.org/10.26452/ijrps.v13i3.2498

Production and Hosted by

IJRPS | https://ijrps.com

INTRODUCTION

Cancer cervix accounts for 80% of female genital cancer and is the most common genital cancer. It is the leading cause of mortality & morbidity among women worldwide. Nearly 400,000 cases are newly diagnosed annually and 80% of these are in developing countries. India accounts for 27% of the incidence all over the world, which is roughly 1,32,082 cases per year. The mortality due to cancer cervix is 14.7% which is very high compared to all cancers.

Invasive cancer of the cervix is a preventable condition since it is associated with a long preinvasive stage making it amenable to screening and treatment. Cervical cancer is the only gynaecological cancer that satisfies the well-recognized WHO criteria. Risk factors for cervical cancer include multiple sexual partners, low socioeconomic status, smokers, and HPV infection [1].

Colposcopy is an important and useful tool which complements pap smear in evaluating such patients. Colposcopy helps in determining indications for cervical biopsy, locating sites and the extent of biopsy. Many findings in colposcopy such as coarse punctations, mosaic pattern, aceto whitening, atypical vessels and surface irregularity have been described to suspect carcinoma in situ, but their accuracy in the prediction of malignancy varies widely among the

published series.

Aims and Objectives

1. To assess the reliability of downstaging in early detection of the precancerous lesion.
2. To correlate the findings in 110 women with unhealthy cervix by cytology, colposcopy directed biopsies.
3. To assess the utility of colposcope in detecting the premalignant and malignant lesions of the cervix.
4. To show that cytology and colposcopy are complementary techniques.
5. To correlate the effect of parity, religion, and socioeconomic status in the development of premalignant and malignant lesions of the cervix.

MATERIALS AND METHODS

Setting

Inpatient and outpatient sections of the Department of Obstetrics and Gynaecology, Sree Balaji medical college & Hospital.

Period of Study

The work was carried out continuously over one year and 2 months.

Collaborating Departments

Department of Pathology, Sree Balaji Medical College & Hospital.

Sample Size

110 women were evaluated by cytology, colposcopy and colposcopic directed biopsies and results were compared.

Inclusion criteria

1. The age of women is 25 to 55 years.
2. Marital status: married women only.
3. All women were examined during post menstrual period.

Exclusion criteria

1. Pregnant women.
2. Unmarried Women.
3. Oral contraceptive pill usage.

Table 1: Results of Downstaging

S. No	Total No of Women	Healthy cervix	Unhealthy Cervix
1	250	140	110

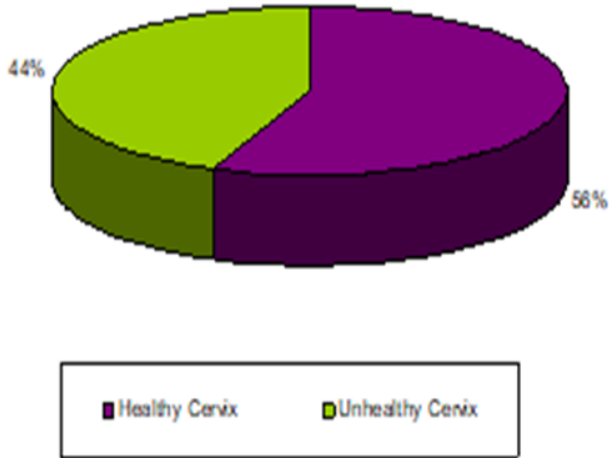

Chart 1: Results of Downstaging

4. Patients who have undergone hysterectomy.

Methodology

At random 250 patients were taken for the study, of which 110 patients with unhealthy cervix on downstaging were selected for Pap smear, colposcopy & colposcopic directed biopsy [2]. A clinical examination was performed. A Pap smear was taken for microscopic study at the time of speculum examination with Ayre's spatula. Subsequently, a colposcopic examination was conducted in all these 110 cases. Detailed history regarding Age, Age at marriage, Sexual practices, Religion, Parity, Age at first pregnancy, Menstrual history, and presenting symptoms were taken.

Table 2: Distributions by Parity

Parity	No of cases	Percentage (%)
Nulliparous	3	2.7
1 or 2	40	36.4
3 or 4	54	49.1
5 and above	13	11.8

Basic Colposcopy tray contains

1. Cotton swab and small cotton-tipped applicators
2. Normal saline
3. 3 - 5% acetic acid

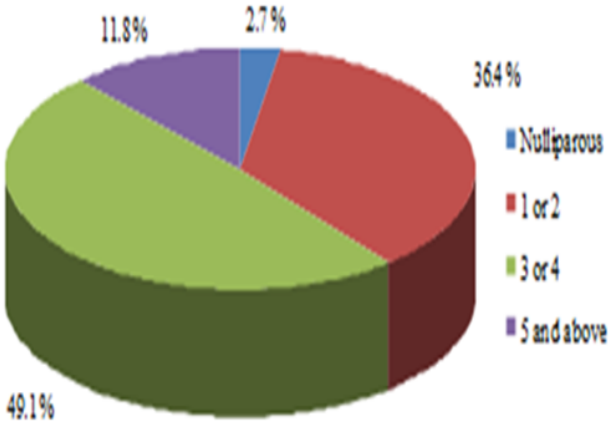

Chart 2: Distributions by Parity

4. Lugol's Iodine
5. Cusco's speculum
6. Tischeler's cervical bunch biopsy forceps
7. Tissue fixative - 10% buffered formalin
8. Cytology fixative - 95% ethyl alcohol and ether

Table 3: Distributions by Religion

Religion	No of Cases	Percentage (%)
Hindu	91	82.7
Muslim	13	11.8
Others	6	5.5

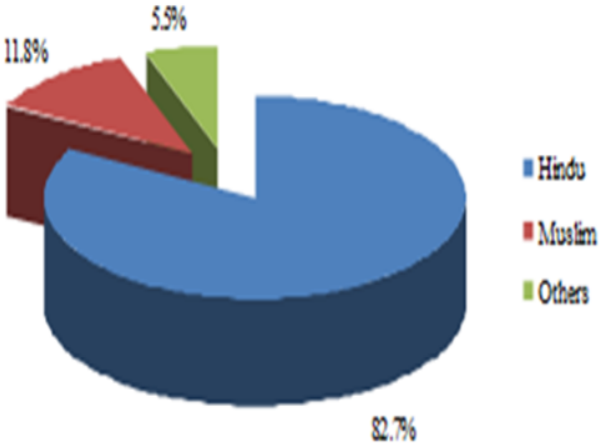

Chart 3: Distributions by Religion

Procedure

1. Patient in lithotomy position
2. No anaesthesia
3. Inspection of the unstained cervix after cleaning with normal saline
4. Inspection with green filter
5. Acetic acid application and evaluation
6. Application of Lugol's Iodine
7. Inspection of vagina and fornices
8. Targeted biopsy whenever indicated
9. Documentation of findings in the standardized colposcopy form

All these values are reported in percentages. Finally, our results were compared with similar analytical studies done worldwide.

Statistical analysis was done using standard statistical packages.

Table 4: Socioeconomic classes: By Prasad classification

Class	No of patients	Percentage (%)
I – Professionals	Nil	Nil
II – White-collared job holders	6	5.5
III – Skilled worker	17	15.5
IV – Semiskilled	40	36.4
V – unskilled	47	42.7

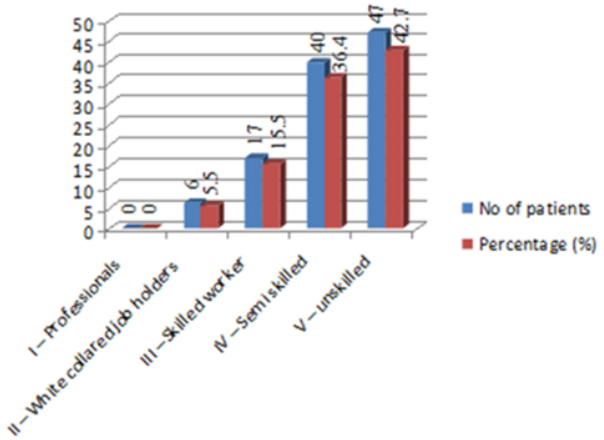

Chart 4: Socioeconomic class distribution in the study group

Table 5: Age at Marriage

Age at marriage	No of cases	Percentage (%)
< 19 years	59	53.6
20 to 29 yrs	48	43.6
> 30 yrs	3	2.7

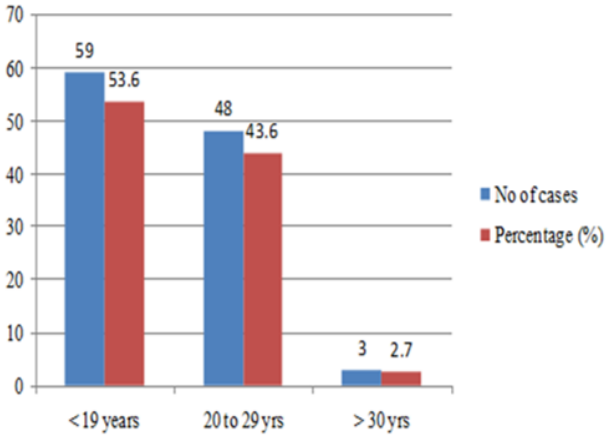

Chart 5: Age at Marriage

RESULTS AND ANALYSIS

The results of the present study are as follows,

At random 250 patients were taken for the study, of which 110 patients with unhealthy cervix on down-staging were selected for Pap smear, colposcopy & colposcopic directed biopsy which was shown in Table 1 and Chart 1.

Table 2 and Chart 2 show the distribution of patients according to their parity. 49.1% of women were between P3 & P4. 36.4% of the patients were between P1 & P2, 11.8% of the women were para 5 & above, while 2.7% were nulliparous.

Table 3 and Chart 3 shows that 82.7% were Hindus, 11.8% were Muslims, and 5.5% were of other religion in this study population.

In this study majority of patients were class V, which constituted 42.7%, followed by class IV which constituted 36.4%, 15.5% were class III, 5.5% were class II and class I were nil as depicted in Table 4 and Chart 4.

Table 5 and Chart 5 shows that 53.6% of the study population married at less than 19 years, 43.6% married between 20 to 29 years and 2.7% of the patients married at more than 30 years.

Table 6 and Chart 6 shows that 68.2% of the patients presented with leucorrhoea, 15.5% presented with menstrual disturbances, 8.2% were asymptomatic, 5.5% presented with pain abdomen, and 2.7% gave a history of postcoital bleeding.

Table 6: Presenting Symptoms

Symptoms	No of cases	Percentage (%)
Leucorrhoea	75	68.2
Menstrual disturbance	17	15.5
Pain abdomen/ Dyspareunia	6	5.5
Post-coital bleeding	3	2.7
Asymptomatic	9	8.2

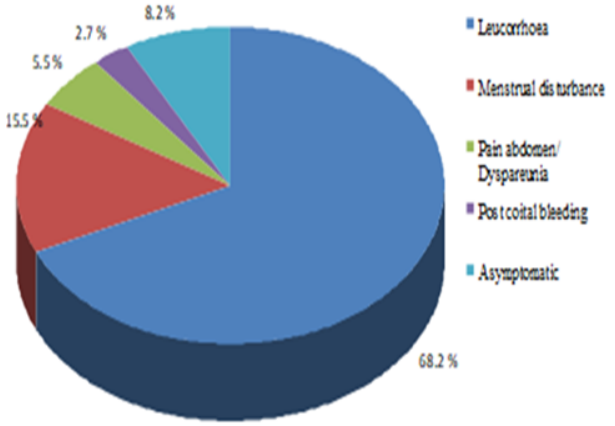

Chart 6: Presenting Symptoms

Table 7: Cytology Observations

Observation	No of cases	Percentage (%)
Normal smear	4	3.6
Inflammatory	84	76.4
Mild dysplasia	12	10.9
Moderate dysplasia	6	5.5
Severe dysplasia	2	1.8
Koilocytosis	2	1.8
Malignancy	Nil	Nil

Table 8: Colposcopy Findings

Appearance	No of cases	Percentage
Normal	16	14.5
Squamous metaplasia	43	39.1
Atypical Transformation Zone	47	42.7
Frank invasion	2	1.8
Unsatisfactory	2	1.8

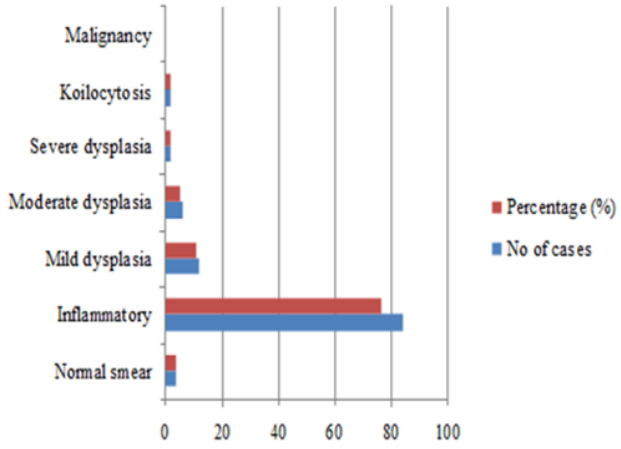

Chart 7: Cytology Observations

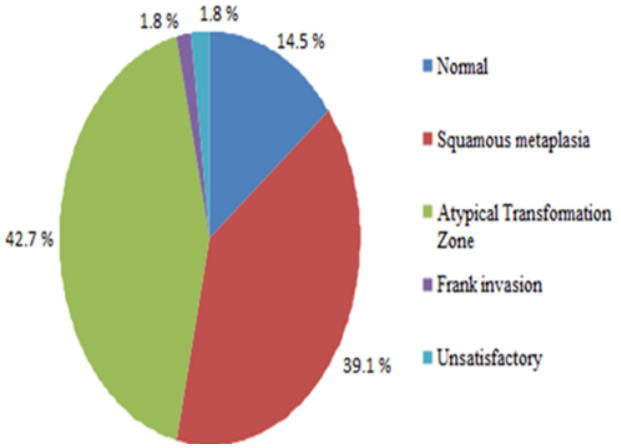

Chart 8: Colposcopy Findings

Some of the patients had more than one complaint, in which major symptom was taken into consideration.

Table 7 and Chart 7 shows that 76.4% of the study population had an inflammatory smear on cytology, 10.9% shows mild dysplasia, 3.6% had a normal smear, and 1.8% shows severe dysplasia.

Table 8 and Chart 8 shows that 42.7% of the patients showed Atypical Transformation Zone on colposcopy, 39.1% showed squamous metaplasia, 14.5% had a normal appearance on colposcopy and 1.8% showed frank invasion.

Table 9 and Chart 9 show the cervical biopsy results of the study group.

In this study, the biopsy revealed chronic nonspecific cervicitis in 44.5% of subjects.

Normal histology in 18.2%, metaplasia in 12.7%, mild dysplasia in 11.8%, moderate dysplasia in 6.4%, severe dysplasia in 4.5%, invasive carcinoma in 1.8%.

Table 9: Histopathology Observations

Microscopic Observation	No of Patients	Percentage (%)
Normal histology	20	18.2
Chronic nonspecific cervicitis	49	44.5
Metaplasia	14	12.7
Mild dysplasia	13	11.8
Moderate dysplasia	7	6.4
Severe dysplasia	5	4.5
Invasive carcinoma	2	1.8

Table 10 and Chart 10 shows Atypical TZ was seen in 45.1% of Hindus, 38.5% of Muslims, and 16.7% of others.

Dysplasia on cytology was noticed in 22% of Hindus. Dysplasia on biopsy was noticed in 24.2% of Hindus, and 23.1% of Muslims. Malignancy on biopsy was detected in 2.2% of Hindus.

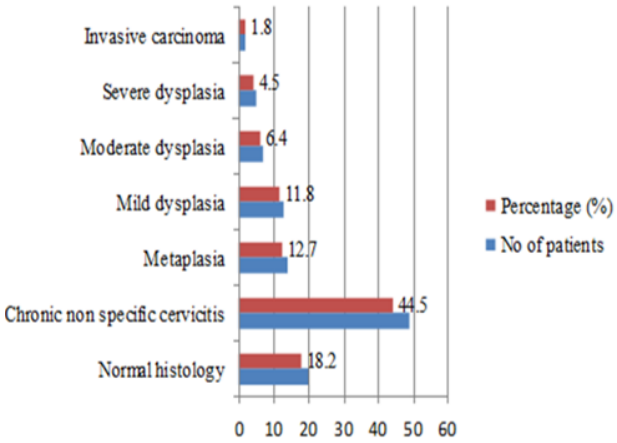

Chart 9: Histopathology Observations

Table 15: Colposcopy vs HPE

Colposcopy	HPE^{+ve}	HPE $^{-ve}$
Positive	26 (a)	23 (b)
Negative	1 (c)	60 (d)
Total	27 (a+c)	83 (b+d)

Table 11 and Chart 11 show among 42.6 percent of multipara had Atypical TZ, 20.4 percent had cytology dysplasia, 22.2 percent had biopsy dysplasia, and 1.9 percent had HPE cancer.

In the large multipara group, 69.2% had an abnormal transformation zone, 38.5 percent had cytology dysplasia, 46.2 percent had HPE dysplasia, and 7.7% had HPE malignancy.

Table 10: Analysis of Abnormal Findings in Relation to Religion

Religion	No of cases	Atypical TZ	Dysplasia on cytology	Dysplasia on biopsy	Malignancy on biopsy
Hindus	91	41 (45.1%)	20 (22%)	22 (24.2%)	2 (2.2%)
Muslim	13	5 (38.5%)	Nil	3 (23.1%)	Nil
Others	6	1 (16.7%)	Nil	Nil	Nil

Table 11: Analysis of Abnormal Findings in Relation to Parity

Parity	No of cases	Atypical TZ	Dysplasia on cytology	Dysplasia on HPE	Malignancy on HPE
Nullipara	3	1 (33.3%)	Nil	Nil	Nil
1 - 2	40	14 (35%)	4 (10%)	7 (17.5%)	Nil
3 - 4	54	23 (42.6%)	11 (20.4%)	12 (22.2%)	1 (1.9%)
5 and above	13	9 (69.2%)	5 (38.5%)	6 (46.2%)	1 (7.7%)

Table 12: Analysis of Abnormal Findings in Relation to Socioeconomic Status

Class	No of patients	Atypical TZ	Dysplasia on cytology	Dysplasia on HPE	Malignancy on HPE
I	Nil	Nil	Nil	Nil	Nil
II	6	1 (16.7%)	Nil	Nil	Nil
III	17	4 (23.5%)	2 (11.8%)	1 (5.9%)	Nil
IV	40	19 (47.5%)	7 (17.5%)	10 (25%)	Nil
V	47	23 (48.9%)	11 (23.4%)	14 (29.8%)	2 (4.3%)

Table 13: Analysis of Abnormal Findings in Relation to Age at Marriage

Age at marriage	No of cases	Atypical TZ	Dysplasia on cytology	Dysplasia on HPE	Malignancy on HPE
<19 yrs	59	31 (52.5%)	16 (27.1%)	20 (33.9%)	2 (3.4%)
20 to 29 yrs	48	16 (33.3%)	4 (8.3%)	5 (10.4%)	Nil
>30 yrs	3	Nil	Nil	Nil	Nil

Table 14: Analysis of Abnormal Findings in Relation to Symptoms

Sl.No	Symptoms	No of cases	Atypical TZ	Dysplasia on cytology	Dysplasia on HPE	Malignancy on HPE
1	Leucorrhoea	75	33(44%)	14(18.7%)	17 (22.7%)	1(1.3%)
2	Menstrual Disturbances	17	6(35.3%)	1(5.9%)	2 (11.8%)	Nil
3	Pain abdomen	6	1(16.7%)	Nil	Nil	Nil
4	Post-coital bleeding	3	1(33.3%)	2(66.7%)	1 (33.3%)	1 (33.3%)
5	Asymptomatic	9	6(66.7%)	3(33.3%)	5(55.6%)	Nil

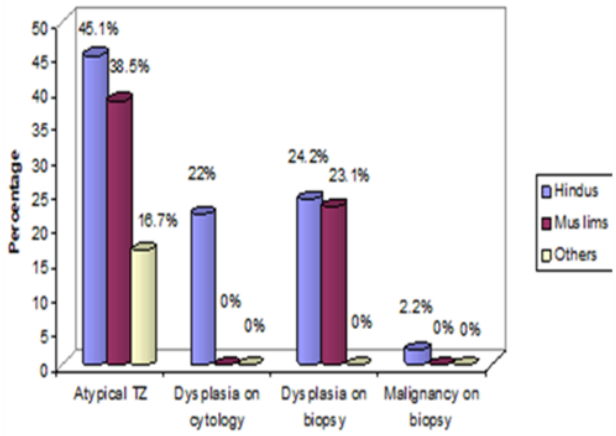

Chart 10: Analysis of Abnormal Findings in Relation to Religion

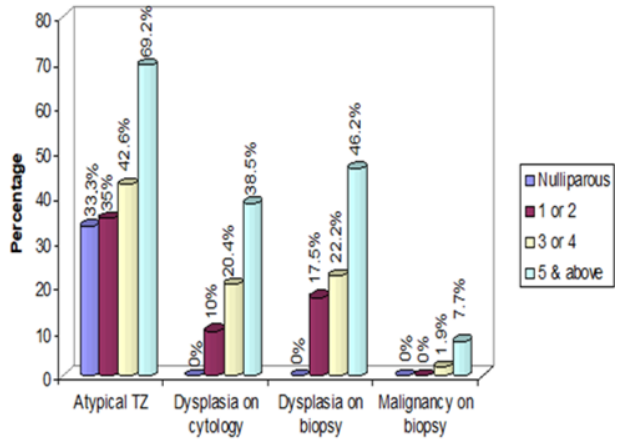

Chart 11: Analysis of Abnormal Findings in Relation to Parity

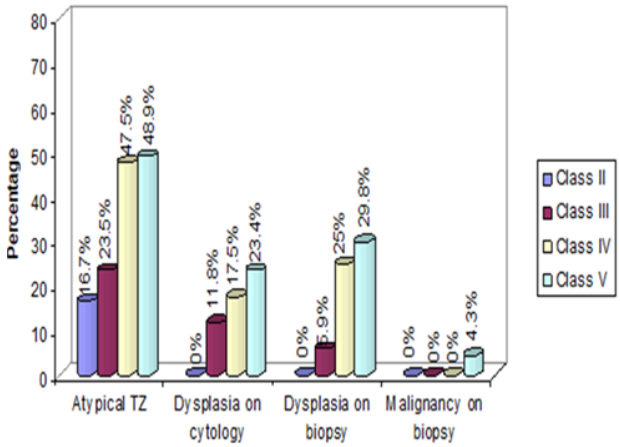

Chart 12: Analysis of Abnormal Findings in Relation to Socioeconomic Status

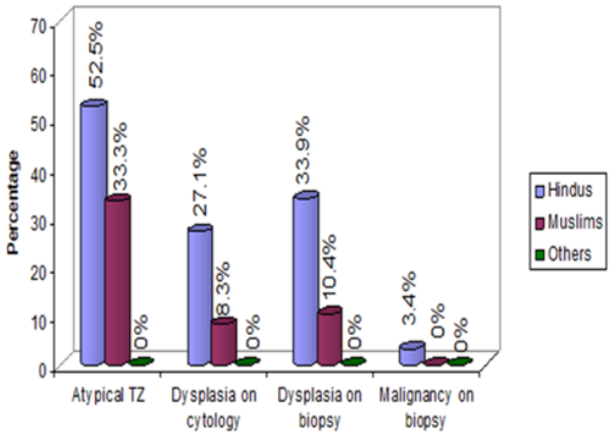

Chart 13: Analysis of abnormal findings in relation to age at marriage

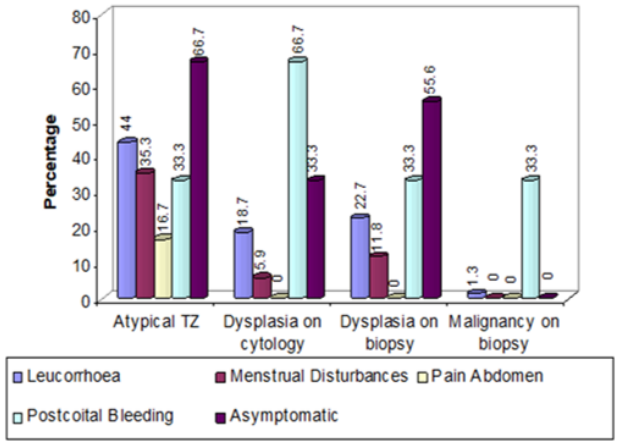

Chart 14: Analysis of Abnormal Findings in Relation to Symptoms

Table 12 and Chart 12 shows that 16.7% of class II patients, 23.5 percent of class III patients, 47.5 percent of class IV patients, and 48.9% of class V patients had atypical TZ. On cytology, dysplasia was found in 11.8 percent of class III patients, 17.5 percent of class IV patients, and 23.4 percent of class V patients. On biopsy, dysplasia was seen in 5.9% of class III patients, 25% of class IV patients, and 29.8% of class V patients. On biopsy, malignancy was discovered in 4.3 percent of class V patients.

Table 13 and Chart 13 shows Atypical TZ was seen in 52.5 percent of patients who married before the age of 19 and 33.3 percent of patients who married between the ages of 20 and 29. On cytology, dysplasia was found in 27.1 percent of individuals married before the age of 19, and 8.3 percent of those married between the ages of 20 and 29.

Table 13 also shows that dysplasia was found on biopsy in 33.9 percent of patients who married before the age of 19 and 10.4 percent of patients who

married between the ages of 20 and 29. Malignancy was discovered on biopsy in 3.4 percent of patients who married while they were under the age of 19.

Table 14 and Chart 14 shows that the Atypical TZ was seen in 44% of patients with leucorrhoea, 35.3% of patients with menstrual disturbance, 16.7% of patients with pain abdomen, 33.3% of patients with postcoital bleeding and 66.7% of patients without any symptoms.

Chart 14 also shows that Dysplasia on cytology was seen in 18.7% of patients with leucorrhoea, 5.9% of patients with menstrual disturbance, 66.7% of patients with postcoital bleeding, and 33.3% of patients without any symptoms.

From Chart 14, Dysplasia on HPE was seen in 22.7% of patients with leucorrhoea, 11.8% of patients with menstrual disturbances, 33.3% of patients with postcoital bleeding and 55.6% of patients without any symptoms. Malignancy in HPE was seen in 1.3% of patient's leucorrhoea, and 33.3% of patients with postcoital bleeding.

Table 15 shows the validity of Colposcopy with Colposcopic directed biopsies in the diagnosis of Dysplasia and Malignancy.

Sensitivity = a / a+c = 26/27 = 96.3%

Specificity = d / b+d = 60/83 = 72.3%

Positive predictive value = a / a+b = 26/49 = 53.1%

Negative predictive value = d / c+d = 60/61 = 98.4%

False positive = b / a+b = 23/49 = 46.9%

False negative = c / c+d = 1/61 = 1.64%

'P' VALUE $p < 0.0001$.

Colposcopy properly detected dysplasia and malignancy in 26 of 27 cases of colposcopic directed biopsy proved dysplasia and malignancy in this investigation. Colposcopy, as a result, showed a higher sensitivity (96.3%) and a lower false negative rate (1.64 percent).

Colposcopy showed a significant rate of false positives (46.9 percent). This could be due to an overestimation of the colposcopic impression, and very immature metaplasia can look unusual and be difficult to distinguish from Dysplasias. Cervicitis can sometimes appear as aceto-white epithelium punctuated with fine needles. When opposed to sensitivity, colposcopy has a lower specificity (72.3%).

Table 16 shows the validity of Cytology with Colposcopic directed biopsies in the diagnosis of Dysplasia and Malignancy.

Sensitivity = a / a+c = 14/27 = 51.8%

Specificity = d / b+d = 77/83 = 92.8%

Table 16: Pap smear vs HPE

Pap smear	HPE $^{+ve}$	HPE $^{-ve}$
Positive Cytology	14 (a)	6 (b)
Negative Cytology	13 (c)	77 (d)
Total	27 (a+c)	83 (b+d)

Table 17: Cytology vs Colposcopy

Pap smear	$^{+ve}$ Colposcopy	$^{-ve}$ Colposcopy
Positive	19 (a)	1 (b)
Negative	30 (c)	60 (d)
Total	49 (a+c)	61 (b+d)

Table 18: Sensitivity and specificity of pap smear by various authors

Sl. No	Author	Sensitivity (%)	Specificity (%)
1	[3]	13.2	96.3
2	[2]	56	90
3	[4]	29.5	92.3
4	[5]	20	91.25
5	Present study	51.8	92.8

Table 19: Sensitivity and Specificity of Colposcopy by Various Authors

Sl. No	Author	Sensitivity (%)	Specificity (%)
1	[6]	89	52
2	[5]	95	63.5
3	Present study	96.3	72.3

Table 20: Positive & Negative Predictive Values of Colposcopy in Various Studies

Study	Positive predictive value	Negative predictive value
[5]	39.58%	95.4%
[7]	77.0 %	87.0 %
[8]	96.3 %	50.9 %
[9]	84.1 %	73.9 %
[10]	53.0 %	75.7 %
[11]	79.0 %	78.5 %
[12]	80.7 %	87.5 %
Present study	53.1%	98.4%

Positive Predictive value = a / a+b = 14/20 = 70%

Negative predictive value = d / c+d = 77/90 = 85.6%

False positive = b / a+b = 6/20 = 30%

False negative = c / c+d = 13/90 = 14.4%

'P' VALUE p < 0.0001.

The sensitivity of Cytology was found to be around 51.8 percent in the current investigation. When compared to colposcopy, the specificity of cytology was high (92.8%). (72.3 percent). On HPE, 70% of individuals with abnormal cytology also had dysplasia.

When compared to Colposcopy, the current study on Cytology has a lower percentage of false positives (30%). (46.9 percent). The false negative rate for cytology was 14.4%, which was greater than the rate for colposcopy (1.64 percent).

Infections, insufficient sampling, incorrect fixation, obscuring elements, and other factors may contribute to the low sensitivity (51.8%) and greater false negative rate (14.4%).

Table 17 shows the validity of Cytology with Colposcopy in the diagnosis of Dysplasia and Malignancy.

Sensitivity = a / a+c = 19/49 = 38.8%

Specificity = d / b+d = 60/61 = 98.4%

Positive predictive value = a / a+b = 19/20 = 95%

Negative predictive value = d / c+d = 60/90 = 66.7%

False positive = b / a+b = 1/20 = 5%

False negative = c / c+d = 30/90 = 33.3%

'P' VALUE p < 0.0001.

When comparing Cytology to Colposcopy, Cytology demonstrated just 38.8% sensitivity (Among the 49 patients with abnormal Colposcopy, 19 patients were positive on Cytology). Cytology, on the other hand, had a better specificity (98.4 percent). (Of the 61 patients who had a negative Colposcopy, 60 had a negative Cytology as well). Colposcopy was abnormal in 95% of patients with abnormal cytology (Among the 20 patients, who were positive on cytology, 19 patients had abnormal Colposcopy too).

The rate of false positives in cytology was lower (5 percent). (On Colposcopy, only one of the 20 patients with positive cytology was negative). However, the rate of false negatives in cytology was significant (33.3 percent) (Of the 90 patients with negative cytology, 30 had a positive Colposcopy).

DISCUSSION

The goal of screening for carcinoma cervix is to diagnose pre- invasive, pre-clinical carcinoma of the cervix. The combined simultaneous use of cytology, colposcopy & colposcopic directed biopsies can pick up early cases which may be missed by any single method.

The study population of 250 women in the age group of 25-55 yrs were selected from the patients attending Gynaecology OPD of Sree Balaji Medical College & Hospital, Chromepet, Chennai, Tamilnadu, India.

Downstaging was done for all the 250 Women. Among the 250 Women, 110 women who were found to have Unhealthy Cervix were subjected to Pap smear, Colposcopy and Colposcopic directed biopsy after explaining the procedure and screening methods.

Downstaging

Among the 250-study series, 140 women had healthy and 110 had unhealthy cervix. Chakravarthy Bvet et al, 1996 study showed in developing countries like India where mass screening programs not available, Downstaging play a role in selecting cases for which Pap smear, Colposcopy and Colposcopic directed biopsy can be taken. It can be done by health workers in rural areas also. Women above 18 yrs of age should undergo Downstaging. My study shows 100% validity.

Histopathological examination of the colposcopic directed biopsy specimen is taken as reference diagnosis. Though negative colposcopic findings do not call for a biopsy, to avoid missing malignancy in false negative colposcopy, the biopsy was routinely done in my study and the results were expressed using dysplasia terminology as per the reporting done by our pathologist at the Department of Pathology, Sree Balaji Medical College, Chennai.

In the present study, 82.7% belong to the Hindu religion and 79.1% belong to class IV and class V socioeconomic status, 60.9% were multi and grand multiparas. 53.6% got married below the age of 19 years, the most common presenting symptom was leucorrhea (68.2%), the most common Cytological observation was Inflammatory smear (76.4%), and the most common Colposcopic finding was atypical transformation zone (42.7%). The most common histological observation was Chronic Non-specific Cervicitis (44.5%).

In terms of parity, our research has found that multiparous women have a higher frequency of dysplasia. Dysplasia on HPE was found in 46.2 percent of women with para 5 and above, 22.2 percent

of women with para 3 and 4, and 17.5 percent of women with para 1 and 2. On HPE, malignancy was found in 1.9 percent of para 3 and 4, and 7.7% of para 5 and above. These findings were in line with those of other investigations.

In a similar study, Shalini et al found that the average parity in patients with invasive cancer was 4.2. The prevalence of CIN was significantly higher in parity of more than two, according to [13]. More positive cases of CIN were discovered with parity greater than four, according to [14]. This could be due to hormonal and dietary changes during pregnancy, as well as immunosuppression and cervical damage after vaginal delivery.

In the development of dysplasia, socioeconomic status has always played a role in epidemiology. The incidence of dysplasia was observed to be greater in the poor socioeconomic group in our study. In the present study, 29.8% of women showing dysplasia on HPE belong to socio-economic class V, 25% belong to class IV, and 5.9% belong to class III. This correlates with the study by Vaidya et al, who showed that low socioeconomic status had a definite role in the development of dyskaryosis. According to Adadevoh et al, Poor personal hygiene, poor living conditions, unstable marriages, and early age at first intercourse are factors associated with both low socio-economic conditions and cervical cancer [15].

Duration of marriage and duration of exposure to sexual intercourse had a distinct role in the genesis of cervical dysplasia. In the present study dysplasia on HPE was 33.9% whose marriages were less than 19 years, 10.4 % who had their marriage between 20 to 29 yrs [3]. These results were comparable with Kushtagi et al who demonstrated the severity of underlying CIN increased with an increase in the duration of marital life and hence the increase in the duration of sexual intercourse.

Among the complaints, the majority of women (68.2%) complained of excessive white discharge per vaginum which showed dysplasia on HPE at 22.7% and malignancy on HPE at 1.3% in my study. Excessive vaginal discharge playing a role in contributing to the development of CIN was also proved to be a risk factor in the study conducted by Vaidya et al.

Table 18 shows the sensitivity and specificity of Pap smear by various authors which were comparable with the present study results. The sensitivity of Pap smear was found to be very low 51.8% compared to its specificity which was 92.8%. This was attributed to the high number of false negative smears [4].

Table 19 shows the sensitivity and specificity of colposcopy in various studies. Colposcopy improved cervical screening, especially in women who had previously negative smears. For higher-grade lesions, there was a good agreement between colposcopic observations and biopsy results. The specificity was 72.3 percent, and the sensitivity was 96.3 percent [5].

When compared to a Pap smear, this had high sensitivity but low specificity. Caused to the high occurrence of unanticipated Aceto White epithelium, which could be due to inflammation, immature metaplasia, erosion, and latent HPV infections, the Aceto White epithelium had a low specificity when compared to Pap smear.

Table 20 depicts the positive and negative predictive values of colposcopy in the present study compared with previous publications. The predictive value of colposcopy was shown to be greater with increasing grades of neoplasia. In our series colposcopy was not used for primary population screening. It was used to evaluate patients with unhealthy-looking cervix [6].

When colposcopic evaluation of the cervix is being done in case of abnormal cytology and/or suspicious cervix, identifying lesions as cancer is more important than avoiding overcalling of lesions. So, to achieve higher sensitivity and negative predictive value a compromise in specificity and positive predictive value should be accepted.

Summary

This study was a prospective study conducted in the Department of Obstetrics and Gynaecology on 250 women who fulfilled the inclusion criteria. 250 women were randomly selected from the patients attending the Gynaecology OPD of Sree Balaji Medical College and Hospital, Chrompet, Chennai. Downstaging was done for all the 250 patients, of which 110 patients had unhealthy cervix and were subjected to a pap smear, Colposcopy and Colposcopic directed biopsy after proper counselling. The results were tabulated and analyzed.

To summarize,

1. Hindus made up 82.7 percent of the research group, Muslims made up 11.8 percent, and other religions made up 5.5 percent. Hindus had greater abnormalities in cytology, colposcopy, and HPE. On HPE, 24.2 percent of Hindus had dysplasia.

2. On HPE, 17.5 percent of para 1 to 2 had dysplasia, 22.2 percent of para 3 to 4 had dysplasia, and 46.2 percent of para 5 and beyond had dys-

plasia, indicating a significant incidence of dysplasia in the multiparity.

3. Dysplasia was shown to be common among people in lower socioeconomic classes. On HPE, dysplasia was found in 5.9% of class III, 25% of class IV, and 29.8% of class V.

4. On HPE, 33.9 percent of women married before the age of 19 and 10.4 percent of women married between the ages of 20 and 29 had dysplasia, indicating a significant frequency of dysplasia in women with early coitarche.

5. Leucorrhoea was the presenting symptom in 68.2 percent of the patients, with 22.7 percent having dysplasia on HPE and 1.3 percent having cancer on biopsy.

6. Postcoital bleeding affected 2.7 percent of the patients, with 33.3 percent having dysplasia and 33.3 percent having malignancy on HPE, demonstrating a significant frequency of dysplasia in individuals with postcoital bleeding and leucorrhoea.

7. Histology revealed that 11.8% of the patients had mild dysplasia with koilocyte alteration, 6.4 percent had moderate dysplasia, 4.5 percent had severe dysplasia, and 1.8 percent had invasive cancer.

8. The significant frequency of false negative smears resulted in a sensitivity of 51.8 percent and a specificity of 92.8 percent for Pap smears.

9. The Pap smear's PPV and NPV were 70 percent and 85.6 percent, respectively.

10. Colposcopy has a 96.3 percent sensitivity and a 72.3 percent specificity. The sensitivity was higher than the Pap smear, but the specificity was lower.

11. Colposcopy's PPV and NPV were found to be 53.1 and 98.4 percent, respectively.

CONCLUSION

Aiming for an earlier CIN diagnosis in adult women is a desirable goal. CIN lesions and early invasive malignancies should be discovered at an earlier stage to allow for more effective treatment. Cervical cancer is avoidable because it has a long pre-invasive stage (CIN), which makes it accessible for screening and therapy.

Our findings in this prospective study showed that Downstaging helps to pick up unhealthy cervical lesions and colposcopy is more sensitive and accurate than a Pap smear. Pap smear is more specific as a screening tool for CIN than colposcopy. Hence, by combining Pap smear with colposcopy, we can maximize the sensitivity and specificity of cancer cervix screening.

As a result, a colposcopy is a great tool for assessing cervical abnormalities. It is a simple and practical procedure that is useful in the teaching, diagnosis, and management of cervical lesions, both cancerous and non-cancerous. Colposcopy should be introduced and encouraged in all medical institutions to evaluate and manage individuals with clinically worrisome cervixes and abnormal pap smears and all biopsies should be colposcopic-directed biopsies in future.

Funding Support

The authors declare that they have no funding support for this study.

Conflictof Interest

The authors declare that they have no conflict of interest.

REFERENCES

[1] A B Miller. Cervical cancer screening program managerial guidelines WHO. *Geneva*, 6(14):44–52, 1992.

[2] R Shalini, S Amita, and M A Neera. How alarming is post-coital bleeding - a cytologic, colposcopic and histological evaluation. *Gynecologic and Obstetric Investigation*, 45(3):205–213, 1998.

[3] M Londhe, S S George, and I Seshadri. Detection of CIN by naked eye visualization after application of acetic acid. *Indian Journal of Cancer*, 34(2):88–91, 1997.

[4] P S Basu, R Sankaranarayanan, Roy R C Mandal, and P Das. Visual Inspection of Cervix with acetic acid and cytology in the early detection of cervical neoplasia in Kolkotta - India. *International Journal of Cancer*, 13(5):626–632, 2005.

[5] Sukhpreet L Singh, Nayana A Dastur, and Murari S. Nanavatti. A Comparison of colposcopy and pap smear: Sensitivity, specificity and predictive values. *Bombay Hospital Journal*, 42(4), 2000.

[6] L S Massad and YC Collins. Strength of Correlation between Colposcopic impression and biopsy. *Journal of Gynaecol Oncol*, 89(3):82–91, 2003.

[7] P M Cristoforoni, D Gerbaldo, A Perino, R Piccoli, F J Montz, and G L Capitonio. Computerized colposcopy: Results of a pilot study and analysis of its clinical relevance. *Obstet Gynecol*, 85(6):51–51, 1995.

[8] Kierkegaard, C Byrjalsen, Frandsen, K C Hansen, and M Frydenberg. Diagnostic Accuracy of Cytology and Colposcopy on Cervical Squamous Intraepithelial Lesion. *Acta Obstet Gynaecol Scand*, 73(8):648–651, 1994.

[9] J L Benedet, G H Anderson, J P Matisic, and D M Miller. A quality control program for colposcopy practice obstet. *Gynecol*, 78:872–875, 1991.

[10] L Seshadri, P Jairaj, and H Krishnaswami. Colposcopy in the diagnosis of cervical neoplasia. *Ind Jr Cancer*, 27(3):180–86, 1990.

[11] A A Edebiri. The relative significance of colposcopic descriptive appearances in the diagnosis of cervical intraepithelial neoplasia. *Int Jr Gynecol Obstet*, 33(1):23–29, 1990.

[12] A Stafl and R F Mattingly. Colposcopic diagnosis of cervical neoplasia. *Obstet Gynecol*, 41(2):168–76, 1973.

[13] P Kushtagi and Fernandez. Significance of Persistent Inflammatory, Cervical smears in Sexually active women of reproductive age. *The Journal of Obs and Gyn. of India*, 52(1):124–130, 2002.

[14] A Vaidya. Comparison of pap test among high risk and non-risk female. *Kathmandu university, a medical journal*, 1(1):8–13, 2003.

[15] S W Adadevoh and B K Forkouh. Cervical cancer screening; first results and future directions in Ghana. *International Journal of Gynaecology and Obstetrics*, 43(1):63–67, 1993.