

Evaluation of colposcopic findings, outcome and treatment on the basis of Histopathological diagnosis in patients with cervical lesions attending gynaecology OPD in NMCH Patna

Deepty Kumari¹, Laxmi Shukla², Tabassum Ahmed³, Vinita Kumari⁴

¹Junior Resident (Academic) Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna, Bihar, India

²Junior Resident (Academic) Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna, Bihar, India

³Professor, Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna, Bihar, India

⁴Associate professor, Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital, Patna, Bihar, India

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Corresponding Author: Dr. Laxmi Shukla

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Abstract:

Background: In developing countries, organized screening programs for cervical cancer are scarce, and the disease is a significant contributor to morbidity and mortality among women. Cervical cytology, colposcopy and histopathological examination are important in early detection of pre-cancerous lesions and to prevent progression of disease. In the present study the correlation between the above-mentioned diagnostic modalities was assessed in women with cervical lesions.

Objective: To determine the correlation between the colposcopy findings, cervical cytology and histopathological diagnosis in the evaluation and management of cervical lesions among women attending Gynecology OPD, Nalanda Medical College and Hospital, Patna.

Methodology: It is a cross-sectional study conducted at hospital with 90 women suspected of cervical pathology who attended in Gynecology OPD for one year. All were examined by Pap smear and colposcopy, and when needed, were biopsied with a colposcopy. Histopathological examination was used as the gold standard method of diagnosis.

Result: Indicated that majority of the participants were multiparous and aged between 31-40 years. Chronic cervicitis was the most frequent histopathological diagnosis while in considerable percentage of women, the pathological lesions were of pre-cancerous and cancerous nature. The Pap smear's sensitivity and specificity were 77.8% and 91.7%, respectively, with a PPV of 70.0% and an NPV of 94.3%. Colposcopy showed higher sensitivity (94.4%), specificity (90.3%), PPV (70.8%), and NPV (98.5%). The results of the combined application of cytology and colposcopy gave a total diagnostic accuracy of 82.2%.

Conclusion: It was concluded that colposcopy had the highest sensitivity than cervical cytology and histopathology was the most definitive diagnostic tool. Cervical cytology in combination with colposcopy with follow-up of suspicious lesions by a biopsy enhances the accuracy of the diagnosis and aids in the timely management of cervical premalignant and malignant lesions.

Keywords: Cervical Lesions, Cervical Cytology, Pap Smear, Colposcopy, Histopathology, Cervical Intraepithelial Neoplasia, Cervical Cancer Screening, Diagnostic Correlation.

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Introduction

Cervical cancer continues to be one of the most important health issues in the world, and a leading cause of cancer-related morbidity and mortality among women. The World Health Organization (WHO) estimates that there are 604,000 new cases of cervical cancer and 342,000 deaths each year, with the majority of cases and deaths in low- and

middle-income countries where organized screening is limited. Although there are new prevention tools, such as HPV vaccines and screening programs, cervical cancer still carries a heavy burden, especially in low-income countries.

Cervical cancer is one of the most prevalent gynecological cancers in India and has a considerable share

in the cancer burden of women in the country. It accounts for almost a fourth of all cervical cancer cases worldwide and there are thousands of new cases each year [1]. Women of low socio-economic status are at a higher risk of the disease due to lack of awareness, sub-optimal access to health care facilities, delayed diagnosis and low participation in routine screening programmes [2]. The prevalence of cervical cancer has slowly reduced in the urban areas due to increased screening and awareness programs, but it remains a significant health problem in many areas of the country, including Bihar.

Cervical cancer has a natural history that is an ideal time for early detection and prevention. Typically, the pre-invasive phase of cervical carcinogenesis is a prolonged one in which progressive changes in the cervical epithelium occur, starting with cervical intraepithelial neoplasia (CIN) and culminating in invasive carcinoma [3]. The uterine cervix is well suited for screening because it is easily accessible for examination and abnormal cells in the epithelium are shed continuously from the pre-cancerous areas. In addition, the gradual progression from mild dysplasia to invasive malignancy may take several years to occur and may be diagnosed and treated in time before invasive disease occurs [4]. Thus, appropriate screening and early diagnosis can help decrease the incidence and mortality of cervical cancer.

Multiple tests have been developed to diagnose 'pre-malignancy' and cancer of the cervix. The Papanicolaou (Pap) test has been the mainstay of cervical cancer screening programs around the world for many years. The pap smear test is a low cost, easily performed and almost non-invasive test for finding abnormal cells from the surface of the cervix which can develop into an invasive disease [5]. However, there is a high degree of sensitivity variation and there are limitations to interpretation and false-negative results that may result from sampling error, inflammatory changes, or other factors [6]. Thus, in many cases, abnormal cytology is followed by additional testing with other diagnostic methods.

Colposcopy has become a valuable diagnostic procedure in the work-up of abnormal cervical cytology and/or suspicious lesions. Colposcopy was introduced in 1925 by Hinselmann and is a method that permits the visualization of the cervical epithelium and vascular architecture after the application of acetic acid and Lugol's iodine [7]. Colposcopy helps to detect areas of abnormality like acetowhite epithelium, mosaic patterns, punctation, abnormal vessels, and iodine-deficiency lesions, which allows for targeted biopsy of the most suspicious areas. This specific technique helps to identify high grade cervical changes and to make a more accurate diagnosis than blind biopsy techniques [8].

The definitive diagnosis of cervical lesions is still by histopathological examination of biopsy specimens.

It is accurate detailed information about the extent of dysplasia, the presence of cervical intraepithelial neoplasia (CIN), the presence of carcinoma in situ, or the presence of an invasive carcinoma and is the basis for therapeutic decisions [9]. However, it is not always possible to get pathological confirmation for all patients, especially in low resource areas. Thus, diagnostic correlation of cervical cytology, colposcopy and histopathology is important to enhance patient management and the efficiency of cervical cancer screening programs.

Several studies have shown different levels of agreement of the tests of cytology, colposcopy and histopathology in the diagnosis of cervical lesions [10,11]. Cytology is useful for screening purposes, colposcopy gives a better visual assessment and aids in biopsy targeting, and histopathology will help confirm the diagnosis. Their concomitant application has been demonstrated to improve the detection rate of both premalignant and malignant lesions of the cervix and to minimize the chance of false negative results [12]. But the value of these methods for diagnosis can be different in different populations and different health care contexts because of demographic, socioeconomic, and epidemiological differences.

Given the prevalence of cervical cancer and the necessity of early diagnosis in Indian population, it is clinically important to assess the correlation between colposcopy, cervical cytology and histopathology diagnosis. Very few data are available from Bihar to compare the effectiveness and the correlation of these diagnostic modalities among women having cervical lesions. Hence the present cross-sectional study was conducted in the Department of obstetrics and Gynaecology NMCH Patna, Bihar to determine the association of the cervical cytology and histopathological diagnosis with the colposcopic findings among women attending gynecology OPD. Additionally, the purpose of the study is to clarify the value of these diagnostic methods for the assessment and management of cervical lesions and to advance screening methods to achieve earlier detection of cervical neoplasia in this population.

Methodology

Study Design: The aim of this cross-sectional, hospital-based study was to assess the correlation between the colposcopy findings, cervical cytology and histopathological diagnosis in the assessment and management of cervical lesions in the Gynecology Outpatient Department (OPD) of the hospital.

Study Area: The study was carried out in the Department of Obstetrics and Gynaecology, Nalanda Medical College and Hospital (NMCH), Patna, Bihar, India.

Study Duration: The study was conducted over a period of one year.

Sample Size: A total of 90 women with the inclusion criteria were enrolled in the study.

Study Population: The study population consisted of women visiting the Gynecology OPD who were suspected of having cervical symptoms, abnormal cervical examination or abnormal cervical cytology and needed further investigation.

Inclusion Criteria

The women who met one or more of the following criteria were included in the study:

- Women over 20 years of age who are sexually active.
- Women who have a persistent discharge from their vagina (leucorrhea).
- Women who experience bleeding or spotting after sex.
- Women with intermenstrual bleeding or spotting.
- Women with cervical erosion, dysfunctioning cervix and/or bleeding lesions on per speculum examination.
- Women who have abnormal or suspect cervical cytology (Pap smear) results.
- Women who are willing to sign a consent form to participate.

Exclusion Criteria

The following women were not included in the study:

- Women who declined to take part in the study.
- Sexually inactive females.
- Women who are pregnant who have contraindications to cervical biopsy.
- Woman with a previously diagnosed carcinoma cervix who are in treatment.
- Women who have an acute pelvic inflammatory disease or severe genital tract infection at examination.
- Women who had unsatisfactory colposcopy with just endocervical curettage.

Ethical Consideration: The study was carried out with prior approval from Institutional Ethics Committee of Nalanda Medical College and Hospital, Patna. All participants gave written informed consent for participation. Patient information was kept confidential and anonymous throughout the study. The study was carried out with respect to the ethical principles of the Declaration of Helsinki.

Data Collection Procedure: Post informed consent, detailed history regarding age, parity, socioeconomic status, menstrual history, contraceptive history, sexual history, presenting symptoms, and relevant medical and gynecological history was taken on a pre-designed proforma.

A detailed general physical examination and gynecological examination were done. Per speculum examination was conducted to evaluate the cervix for erosion, ectropion, ulceration, hypertrophy, bleeding-on-touch, suspicious lesions or any other visible abnormalities.

Women who had excessive vaginal discharge were evaluated to exclude genital tract infections. Appropriate treatment was administered before cervical cytology was performed.

Cervical Cytology: Participants were told to refrain from vaginal douching, intravaginal medication and sexual intercourse for at least 72 hours before sample collection. Traditional Pap smears were collected from the endocervix and ectocervix using a spatula and endocervical cytobrush, respectively, designed by Ayre. The material collected was immediately smeared on clean glass slides and fixed in 95% ethanol.

Cytological smears were analysed and reported in accordance with the Bethesda System for Reporting Cervical Cytology. The cytological diagnosis was classified as Negative for Intraepithelial Lesion or Malignancy (NILM), ASC-US, ASC-H, LSIL, HSIL, AGC, or carcinoma.

Colposcopic Examination: Evaluation of the Pap smear was followed by a standard colposcopy. Application of 3–5% acetic acid and Lugol's iodine solution followed by examination of the cervix. Acetowhite areas, punctuation, mosaic patterns, atypical vessels, iodine-negative areas, and areas of the lesion were recorded.

Where appropriate, the severity of the lesions was scored on the Modified Reid Colposcopic Index (RCI) or Swede Score. Colposcopy impression was classified as normal, low-grade lesion, high grade lesion or invasive disease.

Histopathological Examination: All women with abnormal colposcopy were biopsied of the cervix using colposcopy. Biopsy samples were preserved in 10% F.F. and sent to the Department of Pathology for histopathology.

The gold standard for evaluation was histopathological diagnosis, which was classified as chronic cervicitis, cervical intraepithelial neoplasia (CIN) grade I (CIN I), grade II (CIN II), grade III (CIN III), carcinoma in situ, and invasive cervical carcinoma.

Outcome Measures: The major finding was to assess the association between the cervical cytology results, colposcopy findings and histopathology diagnosis.

Secondary outcomes included:

- The age and parity distribution of cervical lesions.

- The clinical presentation of women with cervical lesions.
- Diagnostic value of cervical cytology and colposcopy, with the reference standard being histopathology.
- Pathological evaluation of management decisions.

Statistical Analysis: The data that were collected were then entered into the Microsoft Excel 2019 spreadsheet and then analyzed using the Statistical Package for Social Studies (SPSS) version 26.0. Descriptive statistics were presented as frequencies, percentages, mean and standard deviation as appropriate. Chi-square test or Fisher's exact test were used to determine the association between categorical variables, where applicable. The correlation between the cervical cytology, colposcopic examination and histopathological analysis was assessed by Chi-square test of agreement and kappa statistics. Cervical cytology and colposcopy were used as the diagnostic tests, and their diagnostic indices such as sensitivity, specificity, positive predictive value

(PPV), negative predictive value (NPV), and overall diagnostic accuracy were calculated with histopathology as the gold standard. A p value <0.05 was regarded as statistically significant".

“Result

Table 1 shows the baseline characteristics of the 90 women enrolled. The age groups of the majority of participants were 31-40 (42.2%) and 41-50 (31.1%), with women aged 51-60 being the remainder (13.3%). Most were aged 31-40 (42.2%) and 41-50 (31.1%), whereas women age >50 years made up 13.3% of the population in the study. The parities were mostly ≥ 3 (60.0%). Half of the respondents (50.0%) presented with leucorrhoea. Twenty-four, 4% of women had abnormal bleeding (postcoital and intermenstrual bleeding), and 20.0% had no symptoms. The results of this study show that cervical lesions were more frequently found in multiparous women older than 30 years who presented with abnormal bleeding and vaginal discharge.

Table 1: Baseline Characteristics of Study Participants (N=90)

Variable	Frequency (%)
Age group	
Age ≤ 30 years	12 (13.3)
Age 31–40 years	38 (42.2)
Age 41–50 years	28 (31.1)
Age >50 years	12 (13.3)
Parity	
Parity <3	36 (40.0)
Parity ≥ 3	54 (60.0)
Presenting complaints	
Leucorrhoea	45 (50.0)
Abnormal bleeding (postcoital/intermenstrual)	22 (24.4)
Asymptomatic	18 (20.0)
Others	5 (5.6)

The distribution of the cervical cytology results among the study population is presented in table 2 below. The most commonly diagnosed cytology was called inflammatory smear, which occurred in 68.9% of cases. 11.1% of the women had mild dysplasia (LSIL) and 4.4% had moderate dysplasia (HSIL) while 5.6% had severe dysplasia. Carcinoma

in situ and frank malignancy were found in 2.2% and 3.3% respectively of the participants. These results indicate that the inflammatory predominance was present, but a significant number of women had abnormal cytology (pre-malignant and malignant changes) that needed additional evaluation.

Table 2: Distribution of Cervical Cytology Findings (Pap Smear) (N=90)

Cytological diagnosis	Frequency (%)
Inflammatory smear	62 (68.9)
Mild dysplasia (LSIL)	10 (11.1)
Moderate dysplasia (HSIL)	4 (4.4)
Severe dysplasia	5 (5.6)
Carcinoma in situ	2 (2.2)
Malignancy	3 (3.3)
Erosion/others	4 (4.4)

The colposcopic results of the study population are summarized in table 3. The most frequently observed colposcopy finding was erosion in 44.4% of women. Acetowhite epithelium was found in 31.1% cases, punctation was found in 20.0%, atypical vessels were found in 16.7%, inflammation was found in 15.6%, mosaic pattern was found in 11.1%, and lesions suggestive of malignancy were found in

17.8% cases. The frequencies were greater than the total number of patients because more than one colposcopy finding could occur within the individual patient. Acetowhite areas, punctation, mosaic and abnormal vessels suggested cervical epithelial abnormalities of varying degrees, emphasizing the role of colposcopy in detecting abnormal areas.

Table 3: Colposcopic Findings among Study Participants (N=90)

Colposcopic finding	Frequency (%)
Acetowhite epithelium	28 (31.1)
Punctation	18 (20.0)
Mosaic pattern	10 (11.1)
Atypical vessels	15 (16.7)
Erosion	40 (44.4)
Inflammation	14 (15.6)
Malignancy suggestive lesion	16 (17.8)

The gold standard for confirmation of cervical lesions was the histopathological diagnosis as shown in Table 4. The most frequent histopathological diagnosis was chronic cervicitis, which was found in 64.4% of cases. Premalignant lesions included CIN I (8.9%), CIN II (3.3%), CIN III (2.2%), and carcinoma in situ (2.2%). Microinvasive carcinoma

(2.2%) and invasive carcinoma (6.7%) were subsumed under malignant lesions. Furthermore, 4.4% of women had polyps and 5.6% had parakeratosis. In conclusion, it was found that there was a significant number of pre-cancerous and cancerous lesions of the cervix among the women in the study.

Table 4: Histopathological Diagnosis (Gold Standard) (N=90)

Histopathological diagnosis	Frequency (%)
Chronic cervicitis	58 (64.4)
Polyp	4 (4.4)
Parakeratosis	5 (5.6)
CIN I	8 (8.9)
CIN II	3 (3.3)
CIN III	2 (2.2)
CIS	2 (2.2)
Microinvasive carcinoma	2 (2.2)
Invasive carcinoma	6 (6.7)

The Pap smear results are correlated with the histopathological diagnosis in Table 5. There were 18 cases which were histopathologically confirmed as premalignant or malignant, of which 14 cases were detected by Pap smear and 4 cases were not detected by Pap smear. Sixty-six of the histopathologically negative cases were correctly identified and 6 were

misclassified as positive. The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of Pap smear were 77.8%, 91.7%, 70.0% and 94.3%, respectively. Cervical cytology is also proving to be a useful screening test which has a high degree of specificity, but some of the important lesions are still missing.

Table 5: Correlation of Pap Smear with Histopathology

Pap smear finding	Histopathology Positive	Histopathology Negative	Total
Pap smear Positive	14	6	20
Pap smear Negative	4	66	70
Total	18	72	90
Parameter	Value		
Sensitivity	77.80%		
Specificity	91.70%		
Positive Predictive Value (PPV)	70.00%		
Negative Predictive Value (NPV)	94.30%		

The correlation between colposcopic findings and histopathological diagnosis is shown in Table 6. The colposcopy correctly identified 17 of the 18 lesions that were histopathologically proven to be premalignant and/or malignant; in one case, no lesion was diagnosed. In the histopathologically negative group, there were 65 correct classifications and 7 misclassifications. The sensitivity and specificity of col-

poscopy were 94.4% and 90.3%, respectively, and the positive predictive value and negative predictive value were 70.8% and 98.5%, respectively. The results confirm the high sensitivity of colposcopy and its very high negative predictive value and suggest that it was an effective method for identifying clinically significant cervical lesions.

Table 6: Correlation of Colposcopy with Histopathology

Colposcopy finding	Histopathology Positive	Histopathology Negative	Total
Colposcopy Positive	17	7	24
Colposcopy Negative	1	65	66
Total	18	72	90
Diagnostic parameter	Value		
Sensitivity	94.40%		
Specificity	90.30%		
Positive Predictive Value (PPV)	70.80%		
Negative Predictive Value (NPV)	98.50%		

The overall degree of agreement between cytology, colposcopy and histopathology is shown in Table 7. Most women (68.9%) were negative on all three modalities. In 13.3% of participants, cytology, colposcopy and histopathology were all positive. A small proportion (3.3%) of lesions were histopathologically confirmed which were not detected by cytology but were found by colposcopy, while 1.1% were detected by cytology but not by colposcopy. A

small number of cases (1.3%) had false-positive results, with the cytology and/or colposcopy results indicating malignancy while the histopathology results were negative. The overall combined diagnostic accuracy of cytology and colposcopy was 82.2%, suggesting that the simultaneous use of both modalities is very useful for the detection of the cervical lesions with premalignant and malignant characteristics more than either method is used alone.

Table 7: Agreement Between Cytology, Colposcopy and Histopathology

Findings	Frequency (%)
Cytology (-), Colposcopy (-), Histology (-)	62 (68.9)
Cytology (+), Colposcopy (+), Histology (+)	12 (13.3)
Cytology (-), Colposcopy (+), Histology (+)	3 (3.3)
Cytology (+), Colposcopy (-), Histology (+)	1 (1.1)
Cytology (+), Colposcopy (+), Histology (-)	5 (5.6)
Cytology (-), Colposcopy (+), Histology (-)	5 (5.6)
Cytology (+), Colposcopy (-), Histology (-)	2 (2.2)
Total	90 (100.0)

Discussion

The present cross-sectional study among 90 women who attended the Gynecology OPD of Nalanda Medical College and Hospital was aimed to study the correlation between colposcopic findings, cervical cytology and histopathological diagnosis in detection and management of cervical lesions. The majority of women belonged to the 31–40 years age group (42.2%), followed by 41–50 years (31.1%). These age groups were mainly associated with histopathologically confirmed premalignant and malignant lesions, suggesting that the 4th and 5th decades of life are susceptible to cervical pathologies. This is in agreement with Jemal et al. who noted a peak incidence of cervical neoplasia at 35–39 years and with Algotar et al. who reported that most cervical lesions were found in women aged 31–50 years [13,14]. These observations make it clear that the signifi-

cance of regular cervical screening in reproductive and peri-menopausal years is important”.

Multiparity was common in the current study as the majority (60.0%) had parity of 3 or more. A positive association between parity and cervical disease was found with the increasing prevalence of premalignant and malignant lesions in multiparous females. It was also reported by Algotar et al. that high parity was an important risk factor among women for cervical carcinogenesis [15]. This heightened susceptibility might be due to repeated trauma to the cervix during childbirth and to chronic HPV infection.

The most predominant complaint was leucorrhea (50.0%), followed by bleeding during or after sex (postcoital or intermenstrual) (24.4%). Leucorrhea was the most common symptom overall, but there was greater association with significant cervical pa-

thology with abnormal vaginal bleeding. Jemal et al. noted similar results, in that women with premalignant and malignant cervical lesions had a high prevalence of postcoital and intermenstrual bleeding. Thus, women with abnormal bleeding should be thoroughly evaluated of their cervix.

Inflammatory smears were the commonest cytological finding in women (68.9%). Eleven.1% were identified as having LSIL, while HSIL, severe dysplasia, carcinoma in situ and malignant lesions accounted for 15.5% of cases. A predominance of inflammatory cytology is found consistent with the findings of Arora et al., who found inflammatory smears in almost 75% of the women screened [16]. The relatively high numbers of inflammatory changes could be due to chronic infections of the cervix and inadequate genital hygiene. In the current study, however, no four lesions were detected cytologically which were later confirmed to be premalignant or malignant. Lawley et al. also noted the false negative effect of routine Pap smear testing and the importance of using additional testing methods [17].

Colposcopy identified a variety of cervical abnormalities, with cervical erosion (44.4%) and acetowhite epithelium (31.1%) being the most common findings. Other abnormalities were punctation, unusual vessels, mosaic patterns and lesions which would suggest malignancy. When the lesions were histopathological correlated with the presence of atypical vascular pattern and malignant appearance, strong association was seen with the presence of CIN and invasive carcinoma. The present results are consistent with the report of Handa et al. who found abnormal vascular pattern as one of most reliable colposcopic findings of significant cervical disease [18]. However, a small number of women with suspicious colposcopy results had only inflammatory changes on histopathology suggesting that colposcopy may occasionally give false impressions.

Histopathological diagnosis showed chronic cervicitis (64.4%) as the most common diagnosis. The proportion of premalignant lesions such as CIN I, CIN II, CIN III and carcinoma in situ were 16.6% and invasive and microinvasive carcinoma were 8.9% of cases. This information suggests that a significant number of women who come in with seemingly benign symptoms may have clinically significant lesions of the cervix. Early identification of CIN is extremely important as treatment can stop the disease from becoming invasive cancer.

The sensitivity, specificity, positive predictive value, and negative predictive value of Pap smear, respectively, were 77.8, 91.7, 70.0, and 94.3 obtained from diagnostic performance analysis. The results are similar to those of Flowers et al., which reported a sensitivity of 50-80% and a specificity of almost 90% for standard cervical cytology [19]. Likewise, Achenbach et al. reported an overall cyto-

logical accuracy of approximately 70%, which is quite similar to the present results [20]. The differences in cytological performance between different studies could be associated with differences in sample collection, slide preparation, and interpretation by observer. Sankaranarayanan et al. also stressed the need to develop better sampling and cytological evaluation techniques to improve screening performance.

The colposcopy had a higher diagnostic performance than cytology with sensitivity of 94.4%, specificity 90.3%, positive predictive value of 70.8% and negative predictive value of 98.5%. The sensitivity recorded in the current study was marginally lower than that reported by Massad et al. [21] which was 89%. The negative predictive value is very high, indicating that if a colposcopy was normal, it is likely that there is no significant cervical disease present. These results confirm the contribution of colposcopy as a useful complementary diagnostic test in women with abnormal cytology or with persistent cervical symptoms.

These modalities gained from each other, as demonstrated by their combined evaluation, which showed the complementary strengths of these modalities. Several lesions identified by colposcopy were not identified on cytology and one histopathologically confirmed lesion had a positive colposcopy impression. AMBIYE et al. also reported that use of cytology combined with colposcopy was beneficial for the detection of PMLs compared to either technique alone [22]. Benedet et al. have also reported that there was increased diagnostic accuracy when cytological and colposcopic findings were combined [23]. Similarly, Tamiolakis et al. demonstrated that the use of integrated cytology-colposcopy enhances the ability to identify women with cervical abnormalities and to improve clinical management [24].

Thus, the present study indicated that cervical cytology, colposcopy and histopathology are complementary and helpful for a proper diagnosis and early management of cervical lesions.

Conclusion

The present cross-sectional study showed that there was a significant correlation between the cervical cytology, colposcopy and histopathology in evaluation of cervical lesion among the female patients attending the Gynecology OPD in Nalanda Medical College and Hospital. Leucorrhea and abnormal vaginal bleeding were the major symptoms with cervical lesions being most common in multiparous women aged 31–50 years. A significant number of women had lesions which were clinically benign but histopathologically benign or malignant. Pap smear had high negative predictive value (NPV) (94.3%) and high specificity (91.7%) for detecting significant cervical pathology while colposcopy had high sensitivity (94.4%) and excellent NPV (98.5%). His-

topathological examination was the Gold Standard test for diagnosis and formed the basis of appropriate management decisions. The simultaneous application of both cervical cytology and colposcopy with subsequent histopathological diagnosis of suspicious lesions resulted in higher diagnostic accuracy and fewer missed diagnoses. Hence, combined management with all three modalities should be advocated for the early detection, accurate diagnosis and early management of cervical premalignant and malignant lesions, especially in resource constrained areas where cervical cancer still remains a significant public health problem.

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