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Colposcopic Findings of Cervix in VIA Positive Cases in Sylhet MAG Osmani Medical College Hospital, Sylhet, Bangladesh

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Background: Cervical cancer is a preventable disease as the different screening, diagnostic, and therapeutic procedures are effective. The screening procedures, VIA and Colposcopy are important screening tools in the evaluation of cervical pre-malignant conditions.

Methods: In this cross-sectional observational study two hundred fifty VIA positive women were included. Pregnant women and women who had any operative procedure in the cervix were excluded. VIA positive patient was subjected to colposcopy and the cervix was visualized for aceto-white lesion under magnification. Findings of colposcopy were recorded and interpreted using the Swede Score.

Results: Three-quarters of the women were multiparity. Colposcopic diagnosis was carcinoma in situ I (CINI) in 143 (57.2%) patients, CIN II in 37 (19.2%) patients CIN III in 26 (10.4%) patients, invasive cervical carcinoma in 17 (6.8%) patients and normal finding in 27 (10.8%) cases. Histopathologically 69 (27.6%) patients had carcinoma in situ (CIN) I, 49 (19.6%) patients had CIN II, 26 (10.4%) patients had CIN III, 45 (18.0%) patients had chronic cervicitis, 17 (6.8%) patients had endocervical polyp, 17 (6.8%) patients had invasive cervical carcinoma and biopsy was not done in 27 (10.8%) patients. All colposcopy-positive CIN 2 (n=37), CIN 3 (n=26) and invasive carcinoma (n=17) were histopathologically proven CIN 2, CIN 3 and invasive carcinoma respectively. While 143 colposcopy-positive CIN 1 cases were histopathologically CIN 1 (48.3%), CIN 2 (8.4%), chronic cervicitis (31.5%), and endocervical polyp (11.9%). Colposcopy correctly diagnosed CIN 2, CIN 3 and invasive carcinoma cervix but about half (52.3%) of the cases of CIN 1 compared to histopathology with overall accuracy of colposcopy was 71.7%.

Conclusion: This study revealed that colposcopy correctly diagnosed CIN 2, CIN 3 and invasive carcinoma cervix but about half of the cases of CIN 1 compared to histopathology with overall accuracy of colposcopy was 71.7%. So, colposcopy has a tremendous role in the evaluation of CIN and cervical carcinoma in VIA positive women.

Keywords: Colposcopy, Findings of Cervix, VIA Positive Cases, Bangladesh

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Introduction

Cervical cancer is the most common form of cancer in women in developing countries and the second most common form of cancer among all cancers as a whole. [1] It is the third most common cancer among women worldwide. [2] Of the new cases 86% occur in developing countries and 14% in developed countries. Cervical cancer constitutes about 26% of female cancer in different areas of Bangladesh. [3] Every year, 11,956 women in Bangladesh are diagnosed with cervical cancer and 6582 women die from the disease. [4] Hospital-based data revealed that cervical cancer constitutes 22-29% of female cancer in Bangladesh. [5] In our country, most of the cervical cancers are diagnosed at advanced stages. So, the mortality is high. Here cervical cancer is an acute problem because of early marriage, multiple marriages, high parity, illiteracy, poor nutrition, and poverty. [6]

Invasive cervical cancers are usually preceded by a long phase of the preinvasive stage. This is characterized microscopically as a spectrum of events progressing from cellular atypia to various grades of dysplasia or cervical intraepithelial neoplasia (CIN) before progression to invasive carcinoma. [7] It usually takes 10-15 years for the transformation of CIN to cervical cancer. [8] The screening procedures include Schiller's test, Lugol's iodine test, Pap smear, VIA (visual inspection of the cervix with acetic acid) and HPV DNA test. In developing countries, which lack screening programs the incidence may be up to six times higher than in developed countries, with about 80% of patients presenting with advanced disease. [9]

The Papanicolaou's (PAP's) smear is a simple, safe, non-invasive and effective method for detection of precancerous, cancerous and noncancerous change in the cervix and vagina. [10] The specificity and sensitivity of Pap's smear are 35% and 94% respectively. [11] The use of acetic acid during visual examination of the cervix, termed visual inspection with acetic acid (VIA), has been advocated as an alternative screening method to Pap smear in developing countries as it is a cost-effective, simple procedure, many health care providers can easily perform the procedure, requires only one visit, real-time screening of results and accuracy comparable to a good quality Pap smear. [12,13]

The term cervical intraepithelial neoplasia (CIN) was introduced in 1968 by Richart to denote the whole range of cellular atypia confined to the epithelium. [14] CIN is regarded as a histological condition where part or whole thickness of cervical epithelium undergoes disordered growth and development e.g. dysplasia. A colposcopy is a low-power, stereoscopic, binocular field microscope with a powerful light source used for magnified visual examination of the uterine cervix to help in the diagnosis of preinvasive and early invasive carcinoma of the cervix. A common problem encountered in colposcopy is inadequate expertise, interpretation difficulties, non-visualization of Squamocolumnar junction (SCJ) and requirement of endocervical curettage in such condition. [12] So, it is better to do colposcopy in all VIA positive patients rather than as a screening procedure. WHO recommends and especially emphasizes early detection policies for programs with a systematic approach, are well integrated into the existing health system and account for the social, cultural and economic context. In Bangladesh, routine use of VIA and colposcopy in all clinically suspicious cases will play a significant role in the detection of early cervical cancer and can prevent their progression to invasive carcinoma. [15] This study aimed to evaluate the VIA positive cases by colposcopy, colposcopy guided biopsy and subsequent histopathological examination.

Materials and Methods

Study design: A cross-sectional observational study.

Place of study: Department of Obstetrics and Gynaecology, Sylhet M.A.G. Osmani Medical College Hospital, Sylhet, Bangladesh.

Study period: April 2021 to September 2021.

Study population: This study was carried out among all women who were VIA positive attending in colposcopy unit in the outpatient department of Obstetrics and Gynaecology, Sylhet M.A.G Osmani Medical College Hospital during the study period who will fulfil the inclusion criteria.

Sample size: The sample size was determined using Guiltford Frucher's formula. The estimated prevalence of VIA positive cases in Sylhet M.A.G Osmani Medical College Hospital in the year 2019 is 80% and the precision level is 5%. Formula,

For convenience of study sample size is taken 246. We took 250 VIA-positive cases.

Inclusion Criteria:

- All VIA positive women who are interested in participating in this study.

Exclusion Criteria:

- Pregnancy
- Women who had any operative procedure in the cervix

Procedures of collecting data: Patients were explained about the purpose, risks and benefits of the procedure and informed consent was taken. All patients attending the study place during the study period fulfilling inclusion criteria were enrolled in the study. The patients were informed in detail regarding the procedure of the study and written consent was obtained. A detailed history was taken from every patient. The examination was done including general examination, abdominal examination, local examination of the vulva, per vaginal examination including per speculum examination of the cervix and bimanual examination. Suspected cases were selected for VIA. VIA was conducted in the colposcopy room. The patient was placed in lithotomy position. Under good light source and aseptic precautions, self-retaining bi-valve Cusco's speculum was inserted to visualize cervix. The cervix was then smeared with 5% acetic acid and observed after one minute.

Any aceto-white lesion with a distinct margin in the transformation zone touching the new squamocolumnar junction was regarded as positive and reported as VIA positive. In the same sitting, VIA positive patient was subjected to colposcopy and the cervix was visualized for aceto-white lesion under magnification. Findings of colposcopy were recorded and interpreted using the Swede Score. Five parameters as the aceto-white lesion, margin or surface, pattern of the vessel, size of lesion and iodine non-uptake region were taken into account. Scoring was rated from 0, 1 and 2 for each finding with a maximum score of 10. A Swede score of 4 or less was regarded as a negative colposcopy and a score more than 4 was regarded as a positive colposcopy for this study. So, any distinct aceto-white lesion on VIA and iodine non-uptake area which appeared mustard or saffron yellow area with a Swede score of more than 4 was considered a positive case.

Then, a punch biopsy was taken from a suspected lesion on colposcopy with punch biopsy forceps. Tissue was put into the vial containing formalin solution with labelling identification for histopathological examination. Histopathological examination was performed in the Department of Pathology, Sylhet MAG Osmani Medical College by senior pathologists who were unaware of the VIA and colposcopy findings. Findings of VIA were compared with colposcopy and correlated with histopathological reports.

Procedure of data analysis and interpretation: Data were processed manually and analyzed with the help of SPSS (Statistical Package for Social Sciences) version 25.0. Quantitative data were expressed as mean and standard deviation. Qualitative data were expressed as frequency, proportion and percentage.

Results

Table 1: Socioeconomic status of the study patients (n=250)

Age	Frequency	Percentage
22-30 years	69	27.6
31-40 years	101	40.4
41-50 years	51	20.4
51-60 years	20	8.0
60-68 years	9	3.6
Education		
Illiterate	67	26.8
Primary	96	38.4
Up to SSC	87	34.8
Socioeconomic		
Poor	90	36.0
Lower Middle	86	34.4
Upper Middle	64	25.6
Rich	10	4.0
Age at Menarche		
11 years	58	23.2
12 years	141	56.4
13 years	51	20.4
Total	250	100.0

The age of the patients ranged from 22 years to 68 years with a mean age of 38.02 ± 10.41 years. Majority (40.3%) patients were in the age group of 31-40 years, 69 (27.6%) patients were aged between 22-30 years, 51 (20.4%) patients were aged between 41-50 years, 20 (8.0%) patients were aged between 51-60 years and 9 (3.6%) patients were aged between 61-68 years.

Revealed that 38.4% (n=96) participants had primary level education, 26.8% (n=67) were illiterate and the remaining 34.8% (n=87) had up to SSC level of education. Regarding socioeconomic status, 36.0% (n=90) of the study population were in the category of poor income group, 34.4% (n=86) were in lower middle-income group, 25.6% (n=64) were in upper-middle-income group and 4% (n=10) were rich. The distribution of the patients based on age at menarche. The age at menarche ranged from 11 to 13 years with the mean (mean ± SD) of 11.97 ± 0.66 years. The age at menarche was 12 years in 141 (56.4%) patients, 11 years in 58 (23.2%) patients and 13 years in 51 (20.4%) patients (table-1).

Table 2: Distribution of the patients according to parity (n=250)

Parity	Frequency	Percentage
Primipara	25	10.0
Para 2-4	189	75.6
Grand multipara	36	14.4
Total	250	100.0

Table-2 shows the distribution of the patients according to parity. In this study 189 (75.6%) women were parity of 2-4, 36 (14.4%) patients were grand multiparity and 25 (10.0%) patients were primiparity.

Table 3: Distribution of the patients according to status of menopause (n=250)

Status of menopause	Frequency	Percentage
Postmenopausal women	48	19.2
Premenopausal women	202	80.8
Total	250	100.0

Table-3 shows the distribution of the patients according to the status of menopause. In this study 202 (80.8%) women were premenopausal women and 48 (19.2%) patients were postmenopausal women.

Table 4: Distribution of the patients by complaints (n=250)

Complaints	Frequency	Percentage
Blood-stained vaginal discharge	39	15.6
Dyspareunia	46	18.4
Foul-smelling vaginal discharge	58	23.2
Lower abdominal pain	45	18.0
Postcoital bleeding	2	0.8
Whitish vaginal discharge	60	24.0
Total	250	100.0

In this study, the presenting complaints were whitish vaginal discharge (24.0%, n=60), foul-smelling vaginal discharge (23.2%, n=58), dyspareunia (18.4%, n=46), lower abdominal pain (18.0%, n=45), blood-stained vaginal discharge (15.6%, n=39) and postcoital bleeding (0.8%, n=2) (table-4).

Table 5: Distribution of the patients by Swede Sore (n=250)

Swede Sore	Number	Percentage
Normal	27	10.8
0 to 4	143	57.2
5-6	37	14.8
7-10	26	10.4
Carcinoma cervix	17	6.8
Total	250	100.0

The finding of colposcopy was interpreted using the Swede score. One hundred thirty forty-three (57.2%) patients had a score of 0 to 4, 37 cases (14.8%) had a score of 5-6, 26 cases (10.4%) had a score of 7-10, carcinoma cervix was in 17 (6.8%) cases and normal cervix in 27 (10.8%) cases (table-5).

Table 6: Distribution of patients according to colposcopic diagnosis (n=250)

Colposcopic diagnosis	Frequency	Percentage
CIN 1	143	57.2
CIN 2	37	19.2
CIN 3	26	10.4
Cervical carcinoma (invasive)	17	6.8
Normal	27	10.8
Total	250	100.0

In this study colposcopic diagnosis was carcinoma in situ I (CINI) in 143 (57.2%) patients, CIN II in 37 (19.2%) patients CIN III in 26 (10.4%) patients, invasive cervical carcinoma in 17 (6.8%) patients and normal finding in 27 (10.8%) cases (table-6).

Table 7: Distribution of patients according to histopathological diagnosis (n=250)

Histopathological diagnosis	Frequency	Percentage
CIN 1	69	27.6
CIN 2	49	19.6
CIN 3	26	10.4
Chronic cervicitis	45	18.0
Endocervical polyp	17	6.8
Cervical carcinoma (invasive)	17	6.8
Not done	27	10.8
Total	250	100.0

In this study histopathologically 69 (27.6%) patients had carcinoma in situ (CIN) I, 49 (19.6%) patients had CIN II, 26 (10.4%) patients had CIN III, 45 (18.0%) patients had chronic cervicitis, 17 (6.8%) patients had endocervical polyp, 17 (6.8%) patients had invasive cervical carcinoma and biopsy was not done in 27 (10.8%) patients had (table-7).

Table 8: Comparative findings of colposcopy and colposcopy-directed biopsy of VIA-positive cases

Colonoscopy	Histopathology					
	CIN 1	CIN 2	CIN 3	Chronic cervicitis	Endocervical polyp	Invasive carcinoma
CIN 1	69 (48.3)	12 (8.4)	0(0.0)	45 (31.5)	17 (11.9)	0(0.0)
CIN 2	0(0.0)	37 (100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
CIN 3	0(0.0)	0(0.0)	26 (100.0)	0(0.0)	0(0.0)	0(0.0)
Invasive carcinoma	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	17 (100.0)
Normal	Biopsy not done					

Among the 143-colposcopy positive CIN 1 cases, histopathologically proven CIN 1 was in 69 (48.3%), CIN 2 was in 12 (8.4%), chronic cervicitis in 45 (31.5%), and endocervical polyp in 17 (11.9%) cases. Among the 37 colonoscopy-positive CIN 2 cases, histopathologically proven CIN 2 was in 37 (100%) cases. Among the 26-colposcopy positive CIN 3 cases, histopathologically proven CIN 3 was in 26 (100%) cases (table-8). Among the 17-colposcopy positive invasive carcinoma cases, histopathologically proven Invasive carcinoma was in 17 (100%) cases. All of the cases of VIA-positive cases were not biopsied. Only colposcopy-positive cases (n=223) were biopsied, therefore, the sensitivity and specificity of colposcopy could not be calculated exactly. The overall accuracy of colposcopy was 66.8%.

Discussion

Our study aims to compare efficacy of VIA with colposcopy in detecting precancerous lesions in patients with clinically unhealthy cervix and to correlate with histopathological findings. [16] In this study, age of VIA positive patients ranged from 22 years to 68 years with a mean age of 38.02 ± 10.41 years. Dorji et al. [17] found that mean age of study population was 36.8±11.9 years, ranging from 20- 72 years. Islam and Sultan, [18] found that mean (±SD) of age of VIA positive cases was 37.9±9.3 years ranging from 18 to 60 years.

This study also showed that the majority (40.3%) of patients were in the age group of 31-40 years, 27.6% of patients were aged between 22-30 years, 20.4% of patients were aged between 41-50 years, 8.0% of patients were aged between 51-60 years and 3.6% of patients were aged between 61-68 years. Velpula and Yerrapragada, [16] found that the majority of participants (60%) belonged to the age group 31-40 years. Dorji et al. [17] found that a maximum of 71% of participants were in the age range from 20 to 40 years. Islam and Sultan, [18] found that the majority of the VIA positive cases (45.0%) belonged to the 35 - 44 years age group. This study revealed that 38.4% of participants had primary level education, 26.8% were illiterate and the remaining 34.8% had up to SSC level of education. Regarding educational status Dorji et al. [17] found that 59.7% of participants had primary-level education, 12.9% were illiterate and the remaining had SSC, HSC or higher degrees. Velpula and Yerrapragada, [16] found that 40% of patients were literate and 60% of patients were illiterate.

Higher levels of education could think that they had a better understanding of the importance and desirability of a champagne of organized screening. In this study 36.0% of participants were in the category of poor income group, 34.4% of patients were in the lower middle-income group, 25.6% of patients were in the upper middle-income group and 4% of patients were rich. Regarding socioeconomic status Dorji et al. [17] found that 51.6% of the study populations were in the category of lower middle-income group and 27.4% were poor. Velpula and Yerrapragada, [16] found that low socioeconomic status was in 65% of cases. Islam and Sultan, [18] found that 34.0% of the study population was from lower middle economic status and 30.0% were from the poor class of socioeconomic status. Socioeconomic status has always played an epidemiological role in the genesis of dysplasia. [19] In this study, the age at first delivery ranged from 18 to 25 years with a mean age of 20.01 ± 1.60 years. The age at first delivery was 21-23 years in 119 (47.6%) patients, 18-20 years in 107 (30.8%) patients and 24-25 years in 24 (9.6%) patients. Dorji et al. [17] found that the mean age at first childbirth was 17.37± 2.98 years ranging from 12 to 27 years. Mishra et al [20] found that the mean age at first childbirth was 21.2 ± 3.5 (range 13-32) years. Early childbirth at a young age contributes to the risk of cervical cancer.

In this study 189 (75.6%) women had parity of 2-4, 36 (14.4%) patients had grand multiparity and 25 (10.0%) patients were primiparity. Regarding parity, Dorji et al. [17] found that 37.1% were para 2 and others had para 3 or more. Velpula and Yerrapragada, [16] found that the majority (50%) were para two. As for the gestity, Soumah et al. found that large multigestes accounted for nearly half of the study population. Islam and Sultan found that 45% had para 5 or more and 38.0% had para 3 to 4. Repeated pregnancies contribute to the risk of cervical cancer. This can be explained by the predisposition of the great multipara to injuries precancerous and cancer of the cervix [21]. In this study 80.8% of women were premenopausal women and 19.2% of patients were postmenopausal women. Mishra et al [20] found that premenopausal women were 87.5%, perimenopausal women were 7.8% and postmenopausal women were 4.8%. In this study, the presenting complaints were whitish vaginal discharge (24.0%, n=60), foul-smelling vaginal discharge (23.2%, n=58), dyspareunia (18.4%, n=46), lower abdominal pain (18.0%, n=45), blood-stained vaginal discharge (15.6%, n=39) and postcoital bleeding (0.8%, n=2). Dorji et al [17] found that indication of colposcopy was 40.3% (n=25) due to VIA positive, 41.9% (n=26) postcoital bleeding, 8.1% (n=5) intermenstrual bleeding and 9.7% (n=6) post-menopausal bleeding. Islam and Sultan [18] found that most of the VIA-positive women (66.0%) complained of whitish vaginal discharge and 37.0% complained of dyspareunia. Others complained were post-coital bleeding (25.0%), blood-stained vaginal discharge (21.0%), post-menopausal bleeding (20.0%) foul-smelling vaginal discharge (9.0%) and itching in and around the vulva (5.0%). Bhattachan et al [22] found that the most common presenting complaints were vaginal discharge in 42.5%, pain in 32.5%, followed by menstrual disorder in 17.5%, post-menopausal bleeding and postcoital bleeding in 2.5% each. In this study 143 (57.2%) patients had a score of 0 to 4, 37 cases (14.8%) had a score of 5-6, 26 cases (10.4%) had a score of 7-10, carcinoma cervix was in 17 (6.8%) cases and normal cervix in 27 (10.8%) cases. Velpula and Yerrapragada, [16] found that 70% of patients had a score of 4 or less, 20% of patients had a score of 5-6 and of patients had a score of 7 or more. In this study colposcopic diagnosis was carcinoma in situ I (CINI) in 143 (57.2%) patients, CIN II in 37 (19.2%) patients CIN III in 26 (10.4%) patients, Invasive cervical carcinoma in 17 (6.8%) patients and normal finding in 27 (10.8%) cases. This finding was consistent with the study of Akter et al [15] that within 100 VIA-positive cases, 68 cases (68%) had positive findings by colposcopy. Islam and Sultan [18] found that 46% of VIA positive cases were found to be normal with a colposcopy examination, 10% had CIN I, 7% had CIN II, 2% had CIN III, and 1% had invasive carcinoma. Dorji et al [17] found that colposcopic diagnosis of the study population of 12.9% patients was normal, 69.4% patients were CIN I, 9.7% patients were CIN II and 8.1% patients were CIN III. In all VIA-positive patients, Choudhury et al. [12] found that 47.7% were colposcopically positive and among colposcopically positive patients CIN-I was 27.69%, CIN-II was 18.46% and CIN-III was 1.54%. In this study 69 (27.6%) patients had carcinoma in situ (CIN) I, 49 (19.6%) patients had CIN II, 26 (10.4%) patients had CIN III, 45 (18.0%) patients had chronic cervicitis, 17 (6.8%) patients had endocervical polyp, 17 (6.8%) patients had invasive cervical carcinoma and biopsy was not done in 27 (10.8%) patients.

Regarding histopathological diagnosis Dorji et al [17] found that 30.6% had chronic acervicitis, 46.8% CIN I, 6.5% CIN II, 6.5% CINIII, 4.8% carcinoma in situ and 4.8% were invasive squamous cell carcinoma. Velpula and Yerrapragada [16] found that 12 (15%) had CIN I, 3(3.75%) had CIN II and 1(1.25%) had (CIN III) and the other had invasive carcinoma. Islam and Sultan, [18] found that histopathological examination of colposcopy-guided biopsy specimens of 54 cases revealed normal in 38.89%, chronic cervicitis in 20.37%, chronic cervicitis with squamous metaplasia in 3.7%, CIN I in 16.67%, CIN II in 11.11%, CIN III in 5.56% and invasive carcinoma in 3.7% cases. Among the 143-colposcopy positive CIN 1 cases, histopathologically proven CIN 1 was in 69 (48.3%), CIN 2 was in 12 (8.4%), chronic cervicitis in 45 (31.5%), and endocervical polyp in 17 (11.9%) cases. Dorji et al [17] found that histopathology reports of 69.35% (n=43) participants with CIN I on colposcopy, 39.5% (n=17) were normal, 53.8% (n=24) were CIN I and 4.7% (n=2) were CIN II. Among the 37 colonoscopy-positive CIN 2 cases, histopathologically proven CIN 2 was in 37 (100%) cases. Dorji et al [17] found that histopathology reports of 9.68 % (n=6) participants with CIN II on colposcopy, 33.3% (n=2) were normal,

16.7% (n=1) were CIN II, 16.7% (n=1) were CIS and 33.3% (n=2) were micro-invasive cancer. Among the 26 colonoscopy-positive CIN 3 cases, histopathologically proven CIN 3 was in 26 (100%) cases. Dorji et al [17] found that histopathology reports of 8.06 % (n=5) participants with CIN III on colposcopy, 20% (n=1) were CIN I, 20% (n=1) were CIN III, 40% (n=2) were CIS and 20% (n=1) were micro-invasive cancer. Among the 17-colposcopy positive invasive carcinoma cases, histopathologically proven invasive carcinoma was in 17 (100%) cases. Therefore, colposcopy correctly diagnosed CIN 2, CIN 3 and invasive carcinoma cervix but about half (52.3%) of the cases of CIN 1 compared to histopathology with overall accuracy of colposcopy was 71.7%. This finding was consistent with the study of Akter et al.[15] that 68 cases had positive findings by colposcopy and among those, 46 (70.5%) cases were found to have positive biopsy findings (true positive).

Conclusion

This study revealed that colposcopy correctly diagnosed CIN 2, CIN 3 and invasive carcinoma cervix but about half of the cases of CIN 1 compared to histopathology with overall accuracy of colposcopy was 71.7%. In conclusion, colposcopy has a tremendous role in the evaluation of CIN and cervical carcinoma in VIA positive women. The time has come to integrate VIA and colposcopy based low cost, ease of implementation, potentially sustainable means of the screening programme in the detection of preinvasive cervical lesions and invasive carcinoma of cervix and reduction of the burden of cervical cancer in Bangladesh.

Limitations of the study: This study was not without limitations. Limitations of the study were

- This study was conducted in a tertiary-level hospital in Sylhet.
- All VIA-positive cases were not biopsied and only colposcopy-positive cases were biopsied, therefore, the sensitivity and specificity of colposcopy could not be calculated.

Recommendations: Based on the current study findings the following recommendation can be made:

- Colposcopy should be integrated with VIA in screening precancerous and cancerous cervical lesions.
- However, further study involving multicenter should be conducted to see the validity of colposcopy in the detection of preinvasive cervical lesions and invasive carcinoma of the cervix in VIA positive women.

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