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Correlation between Colposcopic Findings and Histopathological Results from Colposcopy Directed Biopsy in VIA(+VE) Cases

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Abstract

Background: Cervical cancer is a major global health problem, with a high burden in developing countries. Early detection and management of precancerous conditions, such as cervical intraepithelial neoplasia (CIN), can help to prevent the development of cervical cancer. Colposcopy, which involves the visualization of the cervix through optical instruments, is considered the gold standard for the diagnosis of cervical abnormalities. The aim of the study was to assess the correlation between colposcopy findings and histopathological results in cases where visual inspection of the cervix with acetic acid (VIA) was positive. **Material & Methods:** This cross-sectional study was conducted at the Department of Gynecology, Institute of Child and Mother Health, Matuail, Dhaka, Bangladesh. The study duration was 1 year, from November 2017 to October 2018. Participants were recruited from the hospital's gynecology outpatient department and included 95 women who had a positive VIA test. A Purposive consecutive sampling method was followed for the selection of the participants. **Results:** The study included 95 patients in Bangladesh who had a positive VIA test. The age distribution of the patients ranged from 25 to 60 years, with a mean age of 35.89±8.88 years. The majority of patients (85.3%) had acetowhite areas, followed by 11 (11.5%) punctuation and 3 (3.2%) mixed (acetowhite area and mosaicism). Histopathological findings revealed that one-third (33.6%) of patients had chronic cervicitis, with 36 (378.8%) having moderate dysplasia, 16 (16.8%) having mild dysplasia, 7 (7.5%) having invasive carcinoma, and 4 (4.2%) having chronic cervicitis with sq. metaplasia. Among the cases, the comparison between colposcopy-directed biopsy results and Colposcopy findings. It was observed that more than one-fourth of 24(29.7%) patients were chronic cervicitis in pure acetowhite area, 8(72.7%) in punctuation, and all patients were mild dysplasia in mixed (acetowhite area and mosaicism). Among 81 patients 53 patients presented with pre-cancerous lesions. The difference was statically significant ($p<0.05$) in the study patients. **Conclusion:** Colposcopy, which involves the visualization of the cervix through optical instruments, was found to be an effective tool for the diagnosis of cervical abnormalities in these cases. These findings highlight the importance of colposcopy as a diagnostic tool for cervical abnormalities, particularly in resource-limited settings where access to other screening methods may be limited.

Keywords:- Colposcopy, Histopathology, Cervical-Cancer.

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INTRODUCTION

Cervical cancer is a major global health issue, with an estimated 500,000 new cases and 250,000 deaths occurring annually. While it is more common in developing countries, accounting for 80% of cases, it is still a significant problem in developed countries as well. Cervical cancer is often preceded by a precancerous condition called cervical intraepithelial neoplasia (CIN), which is characterized by abnormal growth and development in the cervical epithelium Richart. (Boicea et al. 2007.[1] There are three stages of CIN: CIN I, CIN II, and CIN III, based on the extent of involvement of the cervical epithelium. Boicea et al. (2007).[1] In Bangladesh, cervical cancer is the most common type of cancer affecting women, with a prevalence of 26% among all female cancers according to data from the National Institute of Cancer Research & Hospital from 1976-1981. Risk factors for cervical cancer in Bangladesh include poverty, early marriage, multiple marriages, high parity, illiteracy, poor nutrition, and lack of basic knowledge about personal hygiene. The World Health Organization considers cervical cancer to be a highly preventable and treatable form of cancer if it is detected early and managed effectively. This is due in part to the accessibility of the cervix, as it is a surface organ that can be easily screened, and the presence of a transformation zone where most precancers and cancers originate.[2] Furthermore, cervical cancer has a long premalignant phase, with a natural progression from mild dysplasia (CIN I) to severe dysplasia (CIN III) that can take 10-20 years, making it a relatively early preventable disease and providing justification for screening.[3] In low-resource settings, however, access to screening tools such as the pap smear can be limited due to cost and the need for trained medical personnel to collect the samples. As a result, alternative techniques such as visual inspection of the cervix with acetic acid (VIA) have been developed. This test is inexpensive and can be performed by medical or non-medical health workers with proper training. It involves applying 2-5% acetic acid to the cervical transformation zone and observing for the presence of acetowhite areas. If such areas are present, the test is considered positive and the patient is then referred for colposcopy and biopsy as needed. Colposcopy, which involves the visualization of the cervix through optical instruments to detect changes in the cervical epithelium and underlying tissue, is considered the gold standard for the diagnosis of cervical abnormalities.[4] However, it is not always effective in differentiating between high-grade and low-grade disease or between low-grade disease and normal cervix.[3,5] The colposcope is a binocular microscope used for direct visualization of the cervix. It is complementary and not a substitute for cytology. Colposcopy and biopsy are often used to reach a confirmed diagnosis of the extent of the abnormality in women with a positive screening test. This study was performed to assess the correlation between colposcopy findings and histopathological results in via-positive cases.

MATERIAL AND METHODS

This cross-sectional study was conducted at the Department of gynecology, Institute of Child and Mother Health, Matuail, Dhaka, Bangladesh. The study duration was 1 year, from November 2017 to October 2018. Participants were recruited from the hospital's

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gynecology outpatient department and included 95 women who had a positive VIA test. A Purposive consecutive sampling method was followed for the selection of the participants. All participants underwent colposcopy and biopsy as needed. Colposcopy was performed using a binocular microscope and biopsy specimens were collected and sent for histopathological examination. The colposcopy findings and histopathological results were compared to determine the correlation between the two. Data on patient characteristics, including age and family monthly income, were also collected and analyzed. Statistical analysis was performed using the chi-square test and p-values less than 0.05 were considered statistically significant.

Inclusion Criteria

- AII married women at or above 30 years of age.
- Married women the onset of sexual activity at a young age (< 20 years) and completed their 10 years of marital life even if she is less than 30 years of age
- All VIA (+ve) cases.

Exclusion Criteria

- Obvious growth, ulcer, or mass at the cervix.

RESULTS

Among the participant cases, and age distribution of the study patients, it was observed that 39(41.1%) patients belonged to age 31-40 years. The mean age was 35.89±8.88 years ranging from 25 to 60 years. It also shows the family monthly income of the study patients, it was observed that more than half (51.6%) of patients' family monthly income had 10000-20000 taka.

Table 1: Distribution of the study patients by age and family monthly income (n=95).

Age (in years)	Number of patients	Percentage
25-30	33	34.9
31-40	39	41.1
>40	23	24.0
Mean ± SD	35.89	±8.88
Range (min-max)	25	-60
Family monthly income (taka)		
<10000	14	14.7
10000-20000	49	51.6
20000-30000	9	9.5
30000-40000	3	3.2
40000-50000	13	13.7
>50000	7	7.3

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Table 2: Distribution of the study patients by P/V discharge (n=95).

P/V Discharge	Number of patients	Percentage
Watery	30	31.6
Discharge with itching	25	26.3
Foul Smelling	23	24.2
Blood Stained	13	13.7
Dirty Brown	4	4.2

It was observed that almost one-third (31.6%) patients had watery, followed by 25(26.3%) discharge with itching, 23(24.2%) foul smelling, 13(13.7%) blood stained and 4(4.2%) dirty brown P/V discharge of the study patients.

Table 3: Distribution of the study patients by irregular P/V bleeding (n=95)

Irregular P/V Bleeding	Number of patients	Percentage
Intermenstrual Bleeding	38	40.0
Post-coital bleeding	26	27.4
Normal	31	32.6

Among the irregular P/V bleeding of the study patients, it was observed that more than one-third (40.0%) patients had intermenstrual bleeding, followed by 26(27.4%) post-coital bleeding and 31(32.6%) normal.

Table 4: Distribution of the study patients by age of marriage and duration of marriage (n=95).

Age of marriage (in years)	Number of patients	Percentage
≤18	85	89.5
>18	10	10.5
Mean ± SD	16.11	±1.84
Range (min-max)	12	-20
Duration of marriage (in years)		
10-20	54	56.8
21-30	26	27.4
31-40	9	9.47
>40	6	6.32
Mean ± SD	20.16	± 8.92
Range (min-max)	10	-45

In the majority (89.5%) of the cases, the age at marriage of the study patients belonged to the age at marriage of 18 years. The mean age of marriage was 16.11±1.84 years ranging from 12 to 20 years. More than half of the patients (56.8%) had been married for 10-20 years. The mean duration of marriage was 20.16±8.92 years ranging from 10 to 45 years.

Table 5: Distribution of the study patients by para (the number of times they have given birth) (n=95).

Para (the number of times they have given birth)	Number of patients	Percentage

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Para		
0	3	3.2
1	9	9.4
2	46	48.4
3	19	20.0
4	15	15.8
7	3	3.2
Mean ± SD	2.52	±1.26
Range (min-max)	0	-7

Among the distribution of 95 study patients based on their para. It appears that the majority of the patients (48.4%) have had 2 deliveries, followed by those with 3 deliveries (20.0%) and 4 deliveries (15.8%). There are also a smaller number of patients with 1 delivery (9.4%), 0 deliveries (3.2%), and 7 deliveries (3.2%). The mean para for all patients is 2.52, with a standard deviation of 1.26. The range of para values is from 0 to 7.

Table 6: Distribution of the study patients by Colposcopy findings (n=95).

Colposcopy findings	**Number of patients**	**Percentage**
Pure acetowhite area	81	85.3
Punctuation	11	11.5
Mixed (acetowhite area and mosaicism)	3	3.2

It was observed the presence of the study patients, it was observed that the majority (85.3%) patients had acetowhite area, followed by 11(11.5%) punctuation, 3(3.2%) mixed (acetowhite area, and mosaicism).

Table 7: Distribution of the study patients by Histopathological results (n=95).

Histopathological results	**Number of patients**	**Percentage**
Chronic Cervicitis	32	33.6
Chronic Cervicitis with sq. Metaplasia	4	4.2
Mild Dysplasia	16	16.8
Moderate Dysplasia	36	37.8
Invasive Carcinoma	7	7.5

Among the cases, Histopathological results of the study patients, it was observed that more than one-third (33.6%) patients had chronic cervicitis, followed by 36(37.8%) moderate dysplasia, 16(16.8%) mild dysplasia, 7(7.5%) invasive carcinoma and 4(4.2%) chronic cervicitis with sq. metaplasia

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Table 8: Comparison between colposcopy-directed biopsy results and Colposcopy findings (n=95).

Colposcopy findings							**P-Value**
	Pure acetowhite area (n=84)		**Punctuation (n=11)**		**Mixed (acetowhite area and mosaicism) (n=3)**		
Histopathological results	n	%	n	%	n	%	0.002[s]
Chronic Cervicitis	24	29.7	8	72.7	0	0.0	
Chronic Cervicitis with sq. Metaplasia	4	4.9	0	0.0	0	0.0	
Mild Dysplasia	13	16.1	0	0.0	3	100.0	
Moderate Dysplasia	33	40.7	3	27.3	0	0.0	
Invasive Carcinoma	7	8.6	0	0.0	0	0.0	

s=significant
p-value reached from the Chi-square test

Among the cases, the comparison between colposcopy-directed biopsy results and Colposcopy findings. It was observed that more than one-fourth of 24(29.7%) patients were chronic cervicitis in pure acetowhite area, 8(72.7%) in punctuation, and all patients were mild dysplasia in mixed (acetowhite area and mosaicism). Among 81 patients 53 patients presented with pre-cancerous lesions. The difference was statically significant ($p<0.05$) in the study patients.

DISCUSSION

Cervical cancer is one of the few highly preventable cancers. The early detection and removal of precancerous cervical lesions effectively abolish the development of invasive cervical cancer. Colposcopy represents potentially the most basic first-step examination for accurate diagnosis of cervical intraepithelial neoplasia (CIN) for women who are referred with abnormal cytology (PAP smear). In this present study, it was observed that 41.1% of patients belonged to age 31-40 years. The mean age was 35.89±8.88 years ranging from 25 to 60 years. Another study found the mean age of women was 32.7±9.0 years.[6] Similarly, another study observed that the majority (42%) of patients were in the 35-45 years of age group.[7] So, the present study indicates that it may be due to striking variations in ethnicity, sociocultural practices, habits, geographical variations, and genetic causes that may have a significant influence. In this current study, it was also observed that 51.6% of patients' family monthly income had 10000-20000 taka. Another study also found the majority (75.56%) of the subjects were belonging to the low socioeconomic group, which supports the present study.[8] In this current study, 31.6% of patients had watery discharge, 26.3% had itching, 24.2% had foul-smelling discharge, 13.7% had bloodstains, and 4.2% had dirty brown discharge. In other studies, discharged PV was the most common clinical complaint in 84.0% of patients, either alone or in combination with other symptoms.[9] In this present study, it was observed that 40.0% of patients had intermenstrual bleeding, followed by 27.4% post-coital bleeding and 32.6% normal. It was also discovered that 89.5% of the patients were of marriageable age (18 years). The mean age of

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marriage was 16.11±1.84 years ranging from 12 to 20 years. More than half of the patients (56.8%) had been married for 10-20 years. The mean duration of marriage was 20.16±8.92 years ranging from 10 to 45 years. Another study found that longer exposure to sexual activity and younger age at first sexual activity was significantly associated with pre-invasive and invasive lesions of the cervix.[9] The mean age at marriage was 15.22 years.[9] Early ages at marriage and early onset of sexual activity (at a younger age) were significantly associated with cervical pre-invasive and invasive lesions. The authors found that 54.17% of CIN I cases, 57.14% of CIN II, 66.67 % of CIN III cases, and 100% of invasive lesions were present in patients with early started sexual activity (before 15 years of age). According to one study, a 15-year age at first intercourse (OR vs. >= 21 years = 2.2) was significantly associated with the risk of invasive cervical cancer.[10] Another study carried out concluded that 87.5% of the appellants got married before the age of 18 years, and 60.61% had their first child before the age of 18 years.[11] In the current study, 48.4% of the patients had para 2. The mean para was 2.52 1.26 and ranged from 0 to 7, which is similar to the study,[7] which discovered that the majority of their patients were multiparous. In our country, a study also found most subjects were multiparous.[3] Similar observations regarding the multiparous were predominant and also observed by studies.[8,9,12,13] In this present study, it was observed that 85.3% of patients had pure acetowhite area, followed by 11.5% punctuation, and 3.2% mixed (acetowhite area and mosaicism). Another study found that 28.0% of women had acetowhite lesions.[14] Another study reported the most common colposcopy feature in their study as acetowhite Ness in 42.5%.[15] In this present study, it was observed that 37.8% of patients had moderate dysplasia, followed by 33.6% chronic cervicitis, 16.8% mild dysplasia, 7.5% invasive carcinoma, and 4.2% chronic cervicitis with sq. metaplasia. In another study, a biopsy was performed in 20 cases which were selected on the basis of clinical or colposcopy findings, Colour, surface, margin, vessels, appearance, and disappearance of lesions, out of which, 11 women (55% of all biopsies) had chronic non-specific cervicitis, 5 women (25%) had mild dysplasia, 2 women (10%) had moderate dysplasia, 2 women (10%) had non-keratinizing squamous cell carcinoma.[14] Regarding the association between Histopathological results in colposcopy-directed biopsy & Colposcopy findings, it was observed that more than 24(29.7%) patients were chronic cervicitis in the acetowhite area, 8(72.7%) in punctuation, all patients were mild dysplasia in mosaicism. There were 53 pre-cancerous lesions among the 81 patients. In the study patients, the difference was statistically significant (p 0.05).

Limitations of The Study

The small sample size of 95 participants, may not be representative of the larger population. A study with a larger sample size is needed.

CONCLUSIONS

The study found that there was a significant correlation between colposcopy findings and histopathological results in cases where visual inspection of the cervix with acetic acid (VIA) was positive. Colposcopy, which involves the visualization of the cervix through optical instruments, was found to be an effective tool for the diagnosis of cervical abnormalities in

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these cases. These findings highlight the importance of colposcopy as a diagnostic tool for cervical abnormalities, particularly in resource-limited settings where access to other screening methods may be limited. Further research is needed to evaluate the effectiveness of colposcopy in differentiating between different stages of abnormal growth and to determine the most appropriate management strategies for patients with abnormal findings.

Recommendation

Based on the findings of this study that colposcopy is used as a diagnostic tool for cervical abnormalities in cases where visual inspection of the cervix with acetic acid (VIA) is positive. Colposcopy was found to have a significant correlation with histopathological results and can help to accurately diagnose and manage abnormal growth in the cervix. It is also recommended that further research be conducted to evaluate the effectiveness of colposcopy in differentiating between different stages of abnormal growth and to determine the most appropriate management strategies for patients with abnormal findings. In addition, efforts should be made to improve access to colposcopy and other screening methods for cervical abnormalities, particularly in resource-limited settings where the burden of cervical cancer is high

REFERENCES

1. Ostör AG. Natural history of cervical intraepithelial neoplasia: a critical review. Int J Gynecol Pathol. 1993;12(2):186-92.
2. Maier RC, Norris HJ. Coexistence of cervical intraepithelial neoplasia with primary adenocarcinoma of the endocervix. Obstet Gynecol. 1980;56(3):361-4.
3. Hoque MR, Haque E, Karim MR. Cervical cancer in low-income countries: A Bangladeshi perspective. Int J Gynaecol Obstet. 2021;152(1):19-25. doi: 10.1002/ijgo.13400.
4. Saleem A, Tristram A, Fiander A, Hibbitts S. Prophylactic HPV vaccination: a major breakthrough in the fight against cervical cancer? Minerva Med. 2009;100(6):503-23.
5. Najib FS, Hashemi M, Shiravani Z, Poordast T, Sharifi S, Askary E. Diagnostic Accuracy of Cervical Pap Smear and Colposcopy in Detecting Premalignant and Malignant Lesions of Cervix. Indian J Surg Oncol. 2020;11(3):453-458. doi: 10.1007/s13193-020-01118-2.
6. Wei B, Zhang B, Xue P, Seery S, Wang J, Li Q, et al. Improving colposcopic accuracy for cervical precancer detection: a retrospective multicenter study in China. BMC Cancer. 2022;22(1):388. doi: 10.1186/s12885-022-09498-0.
7. Arora RS, Patel SM, Poddar P. A study of cytology and colposcopy in VIA (visual inspection of cervix with 5% acetic acid) positive women. IJRCOG. 2018;7(2):571-575.
8. Atla BL, Uma P, Shamili M, Kumar SS. Cytological patterns of cervical pap smears with histopathological correlation. Int J Res Med Sci. 2017;3(8):1911-1916.
9. Khatri S. Histopathological and Colposcopic Correlation for Cervical Lesions at Tertiary Care Centre in Central Part of India. Int J Sci Res. 2017;9(6):1143-1147.
10. Smith JS, Green J, De Gonzalez AB, Appleby P, Peto J, Plummer M, et al. Cervical cancer and use of hormonal contraceptives: a systematic review. Lancet. 2003;361(9364):1159-1167.
11. Thakre TR, Singh A, Mitra M. Socio-Demographic Profile of Cervix Cancer Patients of Chhattisgarh. Int J. 2015;9(1):35-39.
12. Hildesheim A, Herrero R, Castle PE, Wacholder S, Bratti MC, Sherman ME, et al. HPV co-factors related to the development of cervical cancer: results from a population-based study in Costa Rica. Br J Cancer. 2001;84(9):1219-26. doi: 10.1054/bjoc.2001.1779.
13. Saha R, Thapa M. Correlation of cervical cytology with cervical histology. Kathmandu Univ Med J (KUMJ). 2005;3(3):222-4.

Annals of International Medical and Dental Research
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14. Garg R, Desai R. Cytologic and colposcopic evaluation of all symptomatic women at tertiary care centre. Int J Adv Med. 2017;4(3):799-804.
15. Bhalerao A, Kulkarni S, Ghike S, Kawathalkar JS. Correlation of pap smear, colposcopy and histopathology in women with unhealthy cervix. J South Asian Feder Obst Gynae. 2012;4(2):97-8.

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