



## EFFECT OF CERVICITIS ON THE RESULT OF VISUAL INSPECTION WITH ACETIC ACID IN CERVICAL CANCER SCREENING: A REPORT FROM UYO, AKWA IBOM STATE, NIGERIA.

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### ABSTRACT:

**Background:** In low resource settings, VIA is used for cervical cancer screening. There are fears that inflammatory conditions of the cervix might affect the results of VIA.

**Objective:** This study was carried out to determine the effect of cervicitis on VIA results.

**Methodology:** Four hundred and sixty one (461) consenting women were recruited and screened for cervical cancer using conventional Pap smear and VIA simultaneously, between March, 2013 and March, 2014 in University of Uyo Teaching Hospital. The results of the two tests were compared using biopsy as the gold standard.

**Result:** Four hundred and forty nine (449) samples were suitable for statistical analysis. Forty nine women (10.9%) were positive by VIA, while 35 women (7.8%) were detected positive by Pap test. Thirty four 34 women (7.6%) had an inflammatory smear. The distribution of VIA results in relation to Pap test results shows that 20.6 % of the inflammatory smears were detected positive by VIA. Biopsy confirmed all the inflammatory smears as truly negative.

**Conclusions:** Cervicitis can minimally influence the outcome VIA in cervical cancer screening. But since inflammatory conditions of the cervix are risk factors for cervical cancer, women with positive VIA and obvious discharges suggestive of cervicitis/PID should undergo further evaluation to rule out cervical dysplasia. It is recommended that cervical cancer screening should be part of the protocol in managing women with genital tract infection.

### INTRODUCTION:

The global annual incidence of cervical cancer is of over 500,000.<sup>1-2</sup> More than 85% of these new cases and about 88% of these cancer related deaths occur in resource-poor countries.<sup>2</sup> It is the second most common cause of cancer related deaths in regions of the world where women do not have access to regular gynaecological care and screening<sup>3</sup>.

Persistent infection of the cervix with high-risk types of Human Papillomavirus is the major

aetiologic factor in the development of cervical cancer and its precursor lesions.<sup>4,5</sup> Early onset of sexual activity, early age at first pregnancy, high parity and multiple sexual partners are associated with the risk of HPV infection.<sup>5</sup> Other risk factors include presence of other sexually transmitted diseases, low socioeconomic class, cigarette smoking, immunosuppression from any cause, vitamin deficiency, and long term oral contraceptive use.<sup>5</sup>

Invasive cervical cancer is preceded by long precancerous stages which are most often

detected by screening programmes<sup>6,7</sup>. The cytology-based screening programmes obtainable in developed countries require a reliable health care infrastructure, adequate number of trained personnel, and multiple clinic visits. In low-resource countries where other health needs are competing for the available resources, the development of alternative cheap method is important. Visual inspection of the cervix with acetic acid (VIA) is one of such alternatives.

Visual inspection with acetic acid has its own draw backs. Acetowhite lesions are not unique to cervical precancerous lesions. Postmenopausal women can have fibrosis and leucoplakia which gives a false positive result.<sup>4</sup> It is also possible that inflammatory conditions of the cervix may give a false positive VIA results. Since inflammatory conditions of the cervix are also risk factors for cervical neoplasia, it is important to evaluate the effect of cervicitis on VIA findings.

**METHODOLOGY**

This cross-sectional, hospital-based study was carried out between March, 2013 and March, 2014 in University of Uyo Teaching Hospital, located in Uyo, the capital of Akwa Ibom State in the South-South geopolitical zone of Nigeria.

A total of 461 women aged between 18-60 years were recruited from the GOPD, HIV clinic, Gynaecology clinic, and Family planning clinics of the hospital. Patients bleeding per vaginum and those being managed for any gynaecological malignancies as well as pregnant women were excluded.

All the women were screened for cervical cancer simultaneously by conventional Papanicolaou (Pap) smear followed by VIA while observing standard precautions and protocols. Freshly prepared 5% acetic acid was used for the VIA.

Photographs of the cervix were taken before and one minute after applying the acetic acid using a Canon Power shot A80 5X optical zoom 16.0 mega pixels camera.

Women with a positive or suspicious VIA and/or positive Pap smear had biopsy.

The 2001 Bethesda System (TBS) of reporting cervical and vaginal cytology was used as the

basis for cytology classification. In addition to TBS, ‘Inflammation’ was added to describe cytology pattern of increased inflammatory cells without cellular atypia.

The results of participants who had an inflammatory cytology was compared with the VIA findings, using biopsy as the gold standard.

The study was approved by University of Uyo Teaching Hospital, Uyo Institutional Health Ethical Research Committee (IHERC) and all consenting women signed a written informed consent. Individual results were communicated to the participating patients and appropriate counselling and referral were made where necessary.

**RESULTS**

The results of 449 women were used for statistical analysis.

The study participants were aged between 18-60 years with a mean age of 35.24±9.26 years. More than 80% of the study participants were below 44 years of age. See table 1 for relevant socio-demographic and clinical characteristics.

**Table 1: Relevant Socio-demographic and Clinical characteristics**

Characteristics	N=449
<b>Age</b>	Number (%)
<b>18 - 24</b>	29 (6.5)
<b>25-30</b>	122 (27.1)
<b>31-36</b>	126 (28.1)
<b>37-44</b>	102(22.7)
<b>above 45</b>	70(15.6)
<b>Marital status</b>	
<b>single</b>	149 (33.2)
<b>married</b>	226 (50.3)
<b>divorced</b>	17 (3.8)
<b>widowed</b>	57 (12.7)
<b>Educational Level</b>	
<b>none</b>	6 (1.3)
<b>primary</b>	80 (17.8)
<b>secondary</b>	138 (30.7)
<b>tertiary</b>	225 (50.1)

<b>Age at Menarche</b>	
≤ 14	314 (69.9)
≥ 15	135(30.1)
<b>Age at first intercourse</b>	
≤ 18	277(61.7)
≥ 19	172 (38.3)

Forty nine women (10.9%) were positive by VIA, while 35 women (7.8%) were detected positive

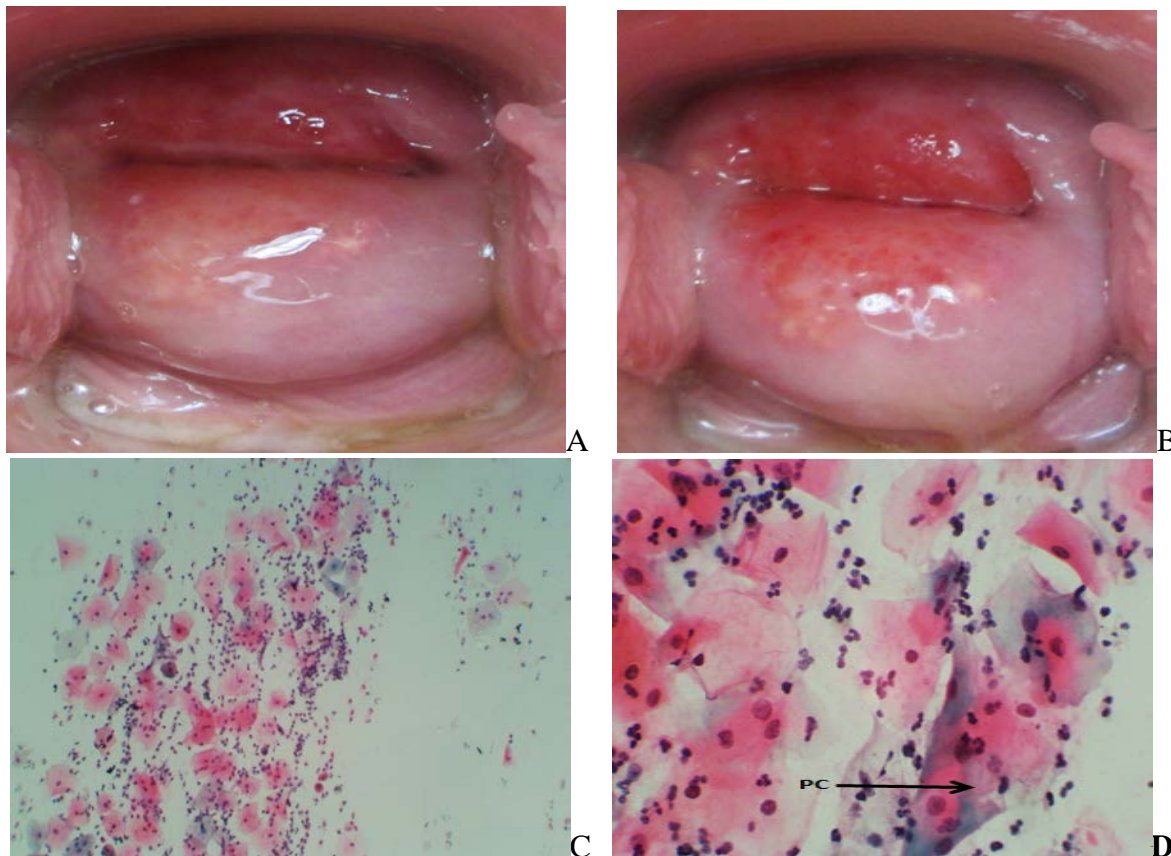
by Pap test. A positive Pap test was considered ASCUS or worse lesions. Thirty four 34 women (7.6%) had an inflammatory smear.

The distribution of VIA results in relation to Pap test results shows that 20.6 % of the inflammatory smears and 7.6 % of the negative Pap smears were detected positive by VIA. The rest of the distribution is shown in table 2 below. Biopsy confirmed all the inflammatory smears as truly negative. The threshold of positive biopsy is CIN-1 and worse lesions.

**Table 2: Distribution of VIA results in relation to Pap test results**

VIA	PAP Smear Result in No (%)					
	INFLAM	NILM	ASCUS	LGSIL	HGSIL	SQCC
<b>Negative</b>	27 (79.4)	351 (92.4)	7 (70)	10 (62.5)	6 (75)	0 (0)
<b>Positive</b>	7 (20.6)	29 (7.6)	3 (30)	6 (37.5)	2 (25)	1 (100)
<b>Total</b>	<b>34 (100)</b>	<b>380 (100)</b>	<b>10 (100)</b>	<b>16 (100)</b>	<b>8 (100)</b>	<b>1 (100)</b>

**Morphological Results**



**Figure 1: Gross photographs from the cervix of a 41 year old premenopausal HNW showing copious light brown discharge and hyperaemia before VIA (A). VIA was negative after one minute but hyperaemia persists (B). The Pap smear shows cervicitis with reactive epithelial cells, some displaying polychromasia (PC). Pap stain x10 (C) / Pap stain x 40 (D).**

## DISCUSSION

Majority of the study participants were aged between 25-36 years. This age range is ideal for cervical cancer screening because studies have shown that the peak age specific prevalence of CIN is around 35 years.<sup>8,9</sup>

This study shows that cervicitis may have some effect on the result of VIA. Less than one quarter (20.6%) of the inflammatory smears were detected positive by VIA. Using biopsy as gold standard, none of these positive VIA was detected as positive.

There is paucity of data on studies that show the effect of cervicitis on the performance of VIA in cervical cancer screening. In a study by Davis-Dao et al,<sup>10</sup> women with cervicitis were twice as likely to have a positive VIA result as women without cervicitis. This study concluded that cervicitis may influence the accuracy of VIA. Another study by Abdul et al<sup>11</sup> shows that women with chronic pelvic inflammatory disease have a higher risk of developing cervical dysplasia. Since cervical dysplasia is associated with a positive VIA, it can be said that women with cervicitis are more likely to be VIA positive. Because cervicitis is a risk factor of cervical neoplasia, the positive VIA seen in women with chronic PID should not be waved as false positive. This assertion is supported by studies that have shown no association between a false positive VIA to specific genital tract infections other than HPV.<sup>10</sup> Women with cervicitis are likely to have HPV infection.

In conclusion, this study has shown that cervicitis can minimally influence the outcome VIA in cervical cancer screening. But since inflammatory conditions of the cervix are risk factors for cervical cancer, women with positive VIA and obvious discharges suggestive of cervicitis/PID should undergo further evaluation to rule out cervical dysplasia. It is recommended that cervical cancer screening should be part of the protocol in managing women with genital tract infection.

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