

## REVIEW OF PAPANICOLAOU SMEARS IN MAIDUGURI -A 15-YEAR STUDY

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### INTRODUCTION

Papanicolaou at Cornell University Medical College laboratories initiated a programme that would be valuable as a screening test in the United States and abroad<sup>1</sup>. Organized cervical cytology screening services and early detection of pre-invasive disease has reduced mortality from invasive cervical cancer in developed countries. Many developing countries are still grappling with other competing health needs like Malaria, HIV/AIDS, Tuberculosis and maternal and child health, such that prevention of cervical cancer has not been given the necessary attention. This is in spite of the fact that Papanicolaou smear is cost effective, acceptable, adaptable to widespread screening and sensitive enough to detect pre invasive disease thereby resulting in decreased morbidity and mortality.<sup>2</sup>

Although Papanicolaou smear is the most popular of the screening methods, human papilloma virus DNA testing, polar probe and visual inspection with or without acetic acid are other modalities of screening for cervical cancer.<sup>3</sup> In a country where the majority of the patients cannot afford the cost of regular hospital visits for preventive purposes, a see and treat approach with less technical know how like the visual inspection is likely to be more rewarding than the opportunistic screening whose value has not been ascertained in our environment.

Cancer of the cervix is the commonest malignancy of the reproductive system.<sup>4,5</sup> Unlike in developed countries, 75% of women in developing countries present in late stages when cure is impossible<sup>6</sup>. Even radiotherapy facilities used for palliation are neither accessible nor affordable to the majority. The best option therefore, is to strengthen screening modalities to cover a large proportion of at risk women at little or no cost. This review aims to evaluate cervical cytology smears and recommend ways of improving coverage.

### Materials and Methods

The smears studied included those of 2082 women attending the obstetrics and gynaecology and family planning clinics between January 1993 and December 2007. After appropriate counseling, the smears were obtained in the dorsal position. A bivalve speculum was introduced to expose the cervix. Mucus on the cervix was wiped off with a swab if present. The hook end of the Ayre's spatula was then placed gently on the external os and

### ABSTRACT

*Mortality from cervical cancer is the leading cause of cancer related deaths in developing countries. Organized cytological screening in developed countries has reduced significantly deaths related to cervical cancer. Opportunistic screenings offered in most parts of the developing world hardly cater for those at high risk.*

**Objective:** To review Pap smears in Maiduguri and compare our findings with other studies

**Methodology:** A 15 year cytological review of 2082 Papanicolaou smear for cervical cytology was carried out from January 1993 to December 2007

**Results:** Of the 2082 cervical cytology smears reviewed, 755(36.3%) were normal, 840(40.3%) showed inflammatory changes, while 132(6.3%) revealed infective agents. Cervical intraepithelial neoplasia (CIN) was seen in 162 (7.8%) of cases while invasive cancer was suspected in 13(0.6%). All were subsequently confirmed by histology. One hundred and sixty six (7.9%) of the smears were unsatisfactory.

**Conclusion:** cytological screening for cervical cancer is low in Maiduguri and efforts need to be made to increase the coverage which could subsequently lead to reduction in cervical cancer related deaths.

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rotated through 380 degrees to scrape the entire squamocolumnar junction. The cellular material so obtained was then quickly spread on glass slides provided by the histopathology laboratory and dipped into a coupling jar containing 95 percent alcohol. Staining technique used was Papanicolaou.

### RESULTS

Table 1 shows the age distribution of the 2082 women who had cervical cytology. The majority 1460 (70.1%) who had cervical smears were within 25-44 year age range. Only 70 (3.4%) women above the age of 55 years were subjected to cervical smear test.

The distribution of the cytology diagnoses is depicted in Table 11. Of the 2082 cervical cytology smears, 755(36.3%) were normal, 840(40.3%) showed inflammatory changes, while 132(6.3%) revealed infective agents. Cervical intraepithelial

neoplasia (CIN) was seen in 162 (7.8%) of cases while invasive cancer was suspected in 13(0.6%).One hundred and sixty six (7.9%) of the smears were returned as unsatisfactory.

The most frequent infective agent diagnosed cytologically was Human Papilloma Virus (HPV) occurring in 91(69%) while the commonest type of inflammation was the mild type which was seen in 571(70.0%) of cases as

shown in Table 111 and 1V

**Discussion**

Knowledge of cervical cancer screening is low in our population where studies have shown that only about 10 to 15 percent of women know about cervical cancer and fewer still know of how to prevent it.<sup>7,8,9</sup>

Inflammatory conditions of the cervix seen in 840(40.3%) was the commonest cytological diagnoses of

cervical smears in this study. This is lower than 72.6% reported from Enugu but higher than 28.6% reported from an earlier questionnaire based study in Maiduguri.<sup>10, 11</sup> The low incidence in this study may be attributed to the timing of the smears. Some inflammatory cells are normally seen in virtually all multiparous and in many nulliparous adult women particularly immediately before, during, and immediately after the menses and is usually of little clinical importance.<sup>12</sup> This therefore underscores the importance of proper timing of Pap smears to minimize over reporting of inflammatory conditions of the cervix.

The cervix being in direct contact with the vagina is exposed to viral, bacterial, fungal, and parasitic agents and these agents may be found in the absence of vaginal disease.<sup>12</sup> The commonest infective agent identified on Pap smear in this study was human papillomavirus (HPV) seen in 69% of infective cervicitis. In the United States, the prevalence of detectable HPV infection rises from 20% in teenagers, to 40% in women 20-29 years of age, with a slow decline thereafter to a plateau of 5% in women age 50 years and older.<sup>12</sup> The high prevalence of HPV in our study could be because the study was among unselected population of varying age groups and the use of cytology for diagnoses. HPV is the primary underlying cause of cervical cancer and affects 50 to 80 percent of sexually active women at least once in their lifetimes. Women generally contract HPV in their teens, 20s or 30s and cervical cancer may take up to 30years to develop after HPV infection.<sup>13</sup> HPV infection in the adolescent cervix seems to be associated with a higher risk of cervical neoplasia compared with infection in later life.<sup>14</sup> While all women with cervical cancer have had HPV, less than 5 percent of women with HPV ultimately develop cervical cancer. These suggest that other factors like cigarette smoking, multiparity, immunosuppression are necessary to the development of cervical cancer. Unfortunately Condoms are not as protective against HPV as they are against other sexually transmitted diseases as transmission can occur from labial-scrotal contact. Other infectious agents identified on

**Table 1: Age distribution among 2082 women who had cervical cytology**

Age	Frequency	Percentage
15-24	326	15.7
25-34	823	39.5
35-44	637	30.6
45-54	226	10.9
55-64	54	2.6
>65	16	0.8
<b>Total</b>	<b>2082</b>	<b>100</b>

**Table 11: Overview of cytologic diagnoses**

Diagnoses	Frequency	Percentage
Normal	755	36.3
Inflammation	840	40.3
Unsatisfactory	166	8.0
CIN	162	7.8
Infective agents	132	6.3
Invasive cancer	13	0.6
Atrophic changes	12	0.6
Hormonal effect	2	0.1
<b>TOTAL</b>	<b>2082</b>	<b>100</b>

**Table 111: Distribution of infective agents**

Infective agent	Frequency	Percentage
HPV	91	69
Trichomonas Vaginalis	19	14.4
Candida	11	8.3
Gadnerella Vaginalis	11	8.3
<b>TOTAL</b>	<b>132</b>	<b>100</b>

**Table 1V: Distribution of inflammation**

Type of inflammation	Frequency	Percentage
Mild	571	70.0
Moderate	74	9.1
Severe	170	20.9
<b>TOTAL</b>	<b>815</b>	<b>100</b>

cytology were *Trichomonas vaginalis*, *Candida* and *Gardnerella Vaginalis*. Papanicolaou smears have a sensitivity of approximately 60% and may yield false-positive results for trichomoniasis.<sup>12,15</sup> *Trichomonas vaginalis* and Bacterial vaginosis are associated with increased acquisition of human immunodeficiency virus<sup>16</sup> and frequency of intercourse is related to candidiasis.<sup>17,18</sup>

The prevalence of CIN of 7.8% in this study is higher than 3.3% reported from South Africa but lower than 10.8% reported from Enugu.<sup>10,19</sup> It is also lower than the 18.2% reported from an earlier questionnaire based study from Maiduguri<sup>20</sup>. Most cases seen in our study were CIN 1. This is similar to other reports<sup>11</sup>. Most cases of CIN 1 associated with HPV regress or

do not progress, especially in those less than 35 years<sup>21</sup>. Women who have persistent HPV infections, especially with high viral loads, have a higher likelihood of developing CIN and cervical cancer.<sup>12</sup>

Thirty six point three percent of the smears were found to be normal. This is lower than 51.4% earlier reported from the same centre.<sup>11</sup> With 36.3% of smears reported as normal and 8.0% as unsatisfactory, there is the need for selective cervical cytology screening for those at risk and proper training on taking Pap smears.<sup>22</sup> Although cervical cytology screening is opportunistic in Nigeria and most developing countries, the detection of invasive carcinoma on cytology is no doubt a failure of a screening programme, be it organized or

opportunistic. The percentage of squamous cell carcinoma of 0.6% found in this study is however lower than the 1.8% reported from Enugu.<sup>10</sup>

According to the 2006 population census, Maiduguri, the capital of Borno state has a population of 521,492, with 138,625 women of reproductive age.<sup>23</sup> With only 2082 women cytologically screened over 15 years; the prevention of cervical cancer is still a mirage in Maiduguri and its environs. There is therefore the need to make the screening services more affordable, acceptable and accessible to the majority of women who need the services especially those who leave in the rural areas and the urban poor.

- Papanicolaou GN, Trunt HF: Diagnosis of Uterine Cancer by the Vaginal Smear. New York, The Commonwealth Fund, 1943
- Franco G. Screening for cervical cancer. *Obstetrical and Gynecological Survey*. 51(4):1996; 247-251
- Spitzer M. Cervical screening adjuncts: recent advances. *Am J Obstet Gynecol*, 1998; 179(2): 544-556
- Nnatu SN, Duroronmi-Etti FA. The problems with the management of carcinoma of the cervix in Nigeria-Lagos experience. *East Afri Med J*. 1985; 62:347-354
- Kyari O, Ngadda H, Mairiga A. Malignant tumours of female genital tract in North eastern Nigeria. *East Afr Med J*. 2004; 81(3):142-145
- Sankaranarayanan R, Black R, Parkin DM. Cancer survival in developing countries. Lyons: International Agency for Research on Cancer (IARC) Scientific publications. No. 145, 1998
- PATH, "Assessing health need/community demand for cervical cancer control: Results from a study in Kenya" *Reproductive health reports* 1(1996)
- Ikeoluwapo O, Ajayi, Isaac FA. "Knowledge and attitudes of general outpatient attendants in Nigeria to cervical cancer" *Central African Journal of Medicine* 44, no 2 (1998):41-43
- Audu BM, EL-Nafaty AU, Khalil M, & Otubu JAM. Knowledge and attitude to cervical cancer screening among women in Maiduguri, Nigeria. *J Obstet Gynaecol*. 19(3):1999;295-29710.
- Ngokere AA, Ofordile PM. Cytological evaluation of cervical smears in the University of Nigeria Teaching Hospital, Enugu and environs: A 5-year study. *Orient journal of medicine*. 1996; 8:1-4
- Audu BM, EL-Nafaty AU, Khalil M, Otubu JAM. The influence of reproductive and marital factors on cervical dyskaryosis. *J Obstet Gynaecol*. 21(6):2001;622-625
- Steven WA, Susan MR. Sexually transmitted diseases and pelvic infections. In: *Current obstetrics and gynaecologic diagnosis and treatment*. Alan HD & Lauren N(eds). 9th edition. Lange Medical Books / McGraw - Hill publishers. 2003. Pp 716-750
- Corneli A, Kleine A, Davila GS et al. A qualitative evaluation of the acceptability and feasibility of a single visit approach to cervical cancer prevention in Ghana (Baltimore: JHPIEGO, 2004)
- Nasiell K, Roger U, Nasiel M. Behaviour of mild cervical dysplasia during long-term follow up. *Obstet Gynecol*. 1986;67:665
- Krueger JN, Tam MR, Stevens CE et al. Diagnosis of trichomoniasis: comparison of conventional wet mount examination with cytologic studies, cultures and monoclonal antibody staining, of direct specimens. *JAMA* 1988; 259:1223-1227
- Fleming DT, Wasserheit JN. Epidemiological synergy: interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. *Sex Transm Infect*. 1999;75(1):3-17
- Spinillo A, Pizzoli G, Colonna L et al. Epidemiologic characteristics of women with idiopathic recurrent vulvovaginal candidiasis. *Obstet Gynecol* 1993;81:721
- Foxman B. Epidemiology of vulvovaginal candidiasis: risk factors. *Am J Public Health* 1990;80:329-31
- World Health Organization. Cervical cancer control in developing countries: memorandum from a WHO meeting. *Bulletin of the World Health Organization*. 1996; 74: 345-351
- Audu BM, EL-Nafaty AU, Khalil M & Otubu JAM. Sexual attitudes and their relation to cervical

**REFERENCES**

intraepithelial neoplasia in

2007;3 (4): 27-29

Maiduguri, Nigeria. J  
Obstet Gynaecol.19(4):1999;412-  
416

21. Population reference  
bureau.Preventing cervical cancer  
worldwide.2004

22. Mayun AA, Bukar M, Abdul U. A  
Good Pap smear:The need for proper  
training Nig Biomedical Science J

23. Federal Government of Nigeria  
\Gazette.The provisional result of  
2006 Census, 2007; 94 (24): 182-  
183.