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Pattern of Premalignant Cervical Lesion and Associated Risk Factors at a Tertiary Health Centre, Northwestern Nigeria: A Ten- Year Review

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ABSTRACT

Introduction: Cervical cancer is the second most common cancer in women and the leading cause of gynaecologic-related morbidity and mortality in developing countries. Cervical dysplasia is a premalignant lesion of the cervix uteri that can progress to cervical cancer over time if untreated. The aim of the study was to identify the risk factors associated with cervical dysplasia and determine the pattern of premalignant lesion of the cervix among women at Usmanu Danfodiyo University Teaching Hospital.

Methodology: A 10 years retrospective study of the cases of premalignant lesion of the cervix managed at Usmanu Danfodiyo University teaching hospital Sokoto (UDUTH) from 1st January, 2013 to 31st December, 2022 was conducted. The case notes of these patients were retrieved and relevant information including socio-demographic characteristics, risk factors and cytology results were obtained. Data analysis was done using SPSS version 20.

Results: A total of 96 cases of premalignant cervical lesion were recorded during the study period however 78 folders were retrieved and analysed giving a retrieval rate of 81%. The mean age of the patient was 43.6 years. More than half of the cases (61.5%) got married before the age of 15 years. Most of the cases (60.3%) had one sexual partner. However, 70.5% were in polygamous family setting. Fourteen (17.9%) were HIV positive. The commonest pattern of cervical dysplasia was high grade squamous intraepithelial lesion (HGSIL) (53.8%) followed by low grade squamous intraepithelial lesion (LGSIL) (30.8%), Adenocarcinoma insitu (10.3%) and ASCUS (5.1%).

Conclusion: The commonest pattern of cervical dysplasia was HGSIL and this indicates the need for organized screening programs for early detection and treatment of cervical intraepithelial neoplasia (CIN).

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INTRODUCTION

Cervical cancer is the second most common cancer in women and the leading cause of gynaecologic-related morbidity and mortality in developing countries.[1] Cervical dysplasia is a premalignant lesion of the cervix uteri that can progress to cervical cancer over time if untreated.[2] Since the introduction of conventional cytology screening by George Papanicolaou in the late 1940s, a drastic reduction has been noticed in the incidence of and mortality due to invasive cervical cancers in many developed nations.[3] However, despite the fact that cervical cancer is now considered a preventable disease, it is still a major cause for cancer-related mortality among women in the Third World countries.[3]

The World Health Organization (WHO) indicates that cervical cancer kills an estimated 275,000 women every year and 500,000 new cases reported worldwide.[4] In India, the total number of cervical cancer cases in 2020 was 123,907 accounting for 18.3% of all cancer cases among women while deaths were 77,348 accounting for 18.7% of female cancer deaths.[5] In Morocco, it accounts for 2165 new cases and 1199 deaths.[6] It constitutes 12.7–37% of female malignancies in Nigeria.[7] Cervical cancer account for more than 70% of female genital tract cancers in Zaria.[2] Ahmed et al. found LSIL and HSIL to have a prevalence of 11.1% and 4.4%, respectively, in Jalingo, North Eastern Nigeria.[2]

About 99.7 % cases of cervical cancer are due to Human Papillomavirus (HPV), particularly types 16 and 18 which are responsible for more than two-thirds of all precancerous cervical lesions and cervical cancers.[8] About 90% of all HPV infections resolve within 2 years. However, the persistent infections lead to an increased risk of pre-cancerous lesions, thereby increasing the risk of development of invasive cancers, typically within 10–15 years.[3]

Various risk factors have been established in relation to cervical cancer, including smoking, age at first intercourse, number of sexual partners and duration of oral contraceptive use. Other risk factors include high parity, HIV infection and immune depression due to malnutrition and other systemic diseases.[9,10] Cervical cancer is preventable through screening; early detection and treatment of pre-invasive cervical lesions.[11] Several screening modalities are available for the detection of cervical cancer and its precursor lesions. Those tests include: cytology or Papanicolaou (Pap) testing, visual inspection using acetic acid (VIA) or Lugol´s iodine (VILI), and HPV test.[8] It is recommended that all sexually active women between ages 20-60 years should have cervical smear every three years as it detects premalignant condition.[12]

Cervical intra-epithelial lesions are characterized by abnormal cellular proliferation, maturation, and atypia with conspicuous nuclear abnormalities including hyperchromasia, pleomorphism, irregular borders, and abnormal chromatin distribution.[13] Bethesda classification reporting system which was first developed in 1988, classified these cytological abnormalities as atypical squamous cells of undetermined significance(ASCUS) which is synonym of the terminology cellular atypia, low grade squamous intra-epithelial lesion (LSIL) which is synonym of the terminology mild dysplasia or cervical intraepithelial neoplasia I (CIN I), here the abnormality is confined to 1/3 of the cervical squamous epithelium and high grade squamous intra epithelial lesion (HSIL) comprising cervical intraepithelial neoplasia II(CINII) or moderate dysplasia (approximately two thirds of cervical squamous epithelium involvement) and cervical intraepithelial neoplasia III (CINIII) or severe dysplasia with cervical carcinoma insitu (more than two thirds to a full thickness of cervical squamous epithelium involvement without involvement of basement membrane).[14] The aim of the study was to identify the risk factors associated with cervical dysplasia and determine the pattern of premalignant lesion of the cervix among women at Usmanu Danfodiyo University Teaching Hospital.

MATERIAL AND METHODS

This was a retrospective descriptive study of the cases of premalignant lesion of the cervix managed at Usmanu Danfodiyo University teaching hospital Sokoto (UDUTH) North western Nigeria from 1st January, 2013 to 31st December, 2022. The hospital numbers of all the cases of premalignant cervical lesion during the study period were obtained from the medical record library. The case notes of these patients were then retrieved from the medical records department. A total of 96 patients were seen during the study period and 78 files were reviewed. The retrieval rate was 81 %. Relevant information including socio-demographic characteristics, risk factors and cytology results were extracted. The proforma were developed based on literature search of similar studies on pattern of premalignant lesion of the cervix and associated risk factors. These variables were analysed using SPSS version 20. Data were analysed for frequencies, percentages, and presented in the form of tables and chart. Ethical approval was granted by the hospital ethical committee.

RESULTS

There were 96 total cases of premalignant cervical lesion managed over the ten-year period 78 case file were retrieved and reviewed giving a retrieval rate of 81%. The mean age of respondents was 43.6 years; the age range was 28-60 years. The age group 31-40 years had the highest frequency representing 39.7% of the cases. Majority of the patient (51.3%) had no formal education while 53(67.9%) are married and 9(11.5%) are single. A higher percentage of the patient are Hausa/Fulani (70.5%) and Muslim (80.8%). About 55 (70.5%) of the patient were house wives. This is shown in Table 1.

Table 1: Socio demographic characteristics

Variable	Frequency	Percentage (%)
Age	**Mean = 43.6**	
≤30	16	20.5
31-40	31	39.7
41-50	3	3.8
51 and above	28	35.9
Educational status		

No formal education	40	51.3
Primary	4	5.1
Secondary	15	19.2
Tertiary	19	24.4
Marital status		
Single	9	11.5
Married	53	67.9
Divorcee	8	10.3
Widow	8	10.3
Ethnicity		
Hausa/Fulani	55	70.5
Yoruba	12	15.4
Igbo	7	9.0
Others	4	5.1
Religion		
Islam	63	80.8
Christian	15	19.2
Occupation		
House wife	55	70.5
Business	12	15.4
Civil servant	11	14.1

More than half of the patient 48(61.5%) got married before the age of 15 years which coincides with the age at coitarche. Most of the cases (60.3%) had one sexual partner; however, 70.5% were in polygamous family setting. Most of the cases (41%) had more than 3 children. A total of 50 (64.1%) had previous history of genital infection and 35 (44.9%) in their male partners but none had history of penile cancer in their partners. About 14 (17.9%) were HIV positive while the rest are negative. This is shown in Table 2.

Table 2: Risk factors for premalignant lesion of the cervix

Variable	Frequency	Percentage (%)
Age at marriage		
≤15	48	61.5
16-20	23	29.5
21 and above	7	9.0
Age at coitache		
≤15	44	56.4
16-20	27	34.6
21and above	7	8.9
Type of family		
Monogamy	23	29.5
Polygamy	55	70.5
No. of marriages		
1.00	55	70.5
>1	23	29.5
Number of sexual partners		
1	47	60.3
2	19	24.4
>2	12	15.3
Parity		
0	23	29.5
1	6	7.7
2	17	21.8
>3	32	41.0
Use of oral contraceptives		
Yes	23	29.5

No	55	70.5
If yes for how long		
≤2	8	34.8
>2	15	65.2
Previous genital infection		
Yes	50	64.1
No	28	35.9
Previous genital infection in male partner		
Yes	35	44.9
No	43	55.1
Male partner circumcision		
Yes	74	94.9
No	4	5.1
History of penile cancer in the partner		
No	78	100.0
Smoking		
Yes	5	6.4
No	73	93.6
HIV infection		
Positive	14	17.9
Negative	64	82.1

The commonest pattern of cervical dysplasia was high grade squamous intraepithelial lesion (HGSIL) (53.8%) followed by low grade squamous intraepithelial lesion (LGSIL) (30.8%), Adenocarcinoma insitu (10.3%) and ASCUS (5.1%). This is shown in figure 1.

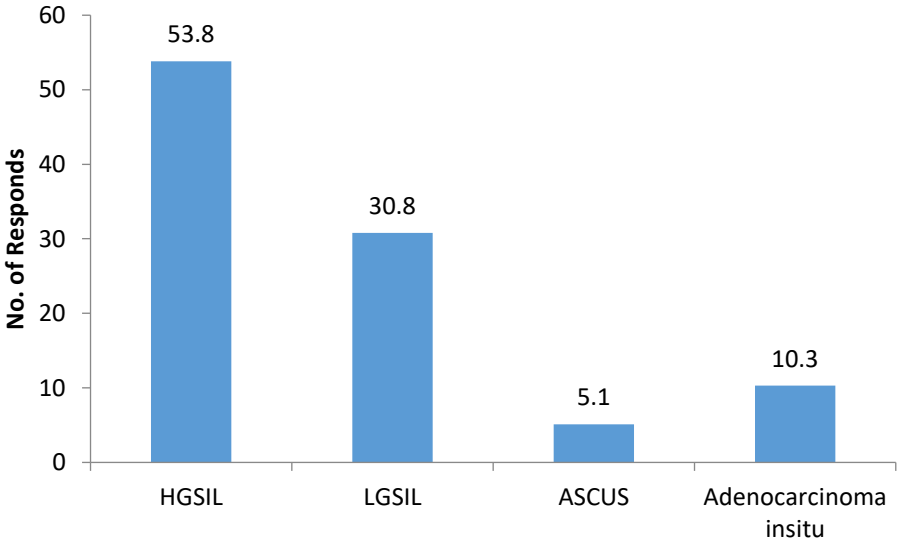

Figure 1: Pattern of cytology result among the cases

DISCUSSION

The key findings from this study shows that the commonest pattern of cervical dysplasia was HGSIL followed by LGSIL. Some of the risk factors identified were early age of coitarche, more than one sexual partner, multiparity, previous history of genital infection and HIV positive.

Cervical cancer is preceded by premalignant stage, and it takes 10–15 years to progress. It is a well-known fact that cervical smear cytology can detect pre-cancerous lesion of cervix at early stages and can reduce morbidity related to cervical cancer.[14] In our study, the average age of the patients was 43.6 years and the most represented age group in our study was 31–40 years (39.7%). This is similar to a study done In India By Chandra MD etal who found the most represented age group to be 31-40 years[12] and also similar to a study done in Zaria who found most of the patients to be in their third decade.[2] also similar to Karthimanthy etal.[3] Illiteracy is one of the risk factor for cervical cancer, because it has an effect on women's nutrition, perineal hygiene, age of marriage, parity, contraceptive choice to assess health facilities and health seeking behaviour. In current study 51.3% had no formal education, this is lower than 78.1% seen in a study done in India[12] and higher than 20.9% in Rwanda[10]. In the present study 41% (32) had more

than 3 children. This figure correlates well with the figures reported from other studies conducted in north central Nigeria[11] but lower than the 50.4% seen in Oman.[9]

Age at first coitus is one of important etiological factor of cervical cancer. It has been stressed, that age of first coitus form basis for cervical cancer this is due to sexual insult to young cervix. A higher percentage of women were married at an early age in our study, which correspond to their age at coitarche. This is similar to a study done in India with 59.4% married below the age of 20 years, and Chandra etal[12] and Rwanda[2], lower than 17.7% in Enugu.[15] Early age of coitarche was identified as a risk factor for cervical dysplasia in this study. Initiation of sexual activity at a young age less than 15 years exposes the immature cervical epithelium to persistent high-risk human papillomavirus (HPV) infection, which is an aetiological factor in pathogenesis of cervical cancer. The transformation zone of the cervix is particularly vulnerable during adolescence, making early sexual debut a critical period for HPV acquisition and subsequent dysplastic changes. This finding highlights the importance of comprehensive sexual and reproductive health education targeted at adolescents, as well as early introduction of HPV vaccination before sexual debut.

Majority of the patients were in polygamous setting while 29.5% were married more than once. This is in contrast to a to a study done in North central Nigeria which reported about 75% of patients with cervical dysplasia to have more than one sexual partner.[11] In our culture, it is difficult to extract history regarding number of sexual partners; therefore, number of marriages of patient and her spouse were taken into consideration. There is indirect evidence in that many women had been married more than once or were wives to men with more than one wife are at more risk to develop CIN.[12] More than one sexual partner was also identified as a risk factor, likely due to increased exposure to high-risk HPV strains which is a sexually transmitted infection (STIs). Multiple sexual partnerships increase the probability of repeated HPV exposure and persistent infection, which are key drivers of cervical dysplasia progression. This reinforces the need for promotion of safe sexual practices, risk-reduction counselling and partner education as part of cervical cancer prevention strategies.

Multiparity was another significant risk factor observed in this study. Prolonged exposure to endogenous hormones, repeated cervical trauma during childbirth, and possible immunological changes associated with multiple pregnancies may contribute to the development and persistence of cervical dysplasia. In addition, women who are multiparous may have limited opportunity to access preventive healthcare services which can further increase their risk for cervical cancer.

The likelihood of developing CIN among HIV women has also been observed in our study. Both viruses are sexually transmitted, and the immunosuppressive state created by the HIV infection makes the virulence of HPV in causing cancer of the cervix undoubtful.[11] A study done in Conakry, Guinea reported that the incidence rate for CIN was 4 to 5 times more in HIV-positive patients compared with HIV-negative patients.[16] similar to Muhammad etal[18], Fitsum etal[1] reported 25.6% prevalence of precancerous cervical lesion in HIV positive women however Bernard etal[8] found that there is no association between HIV infection and development of precancerous cervical lesion. Immunosuppression in HIV-infected women leads to higher rates of persistent HPV infection, faster progression from low-grade to high-grade lesions, and increased recurrence after treatment. This finding underscores the need for frequent cervical cancer screening among women living with HIV. It should involve integrating cervical cancer screening into HIV care programs which could improve early detection in this high-risk group so that appropriate treatment can be offered.

This study shows that HGSIL is the commonest pattern of cervical dysplasia followed by LGSIL, Adenocarcinoma insitu, and the least was ASCUS as opposed to findings in Bernard Wabo etal[8], James A.I etal[13], Chidimma A.O etal[15], Avidemi etal[2], Baran K.B etal[17] in which LGSIL was found to be commonest. Kanthimathy etal[3], Gidwani R.K etal[19], Eman etal[9] found ASCUS to be the commonest.

The finding from this study of HGSIL as the common pattern of dysplasia is significant as HGSIL is a precancerous condition with a high likelihood of progression to invasive cervical cancer if untreated. This may suggest that many women in this study population do not present early for cervical cancer screening. In low-resource settings, this may indicate poor awareness of cervical cancer, limited access to routine cervical cancer screening services, and sociocultural barriers that delay healthcare-seeking behaviour. Early detection of LGSIL through organized regular screening could prevent progression to HGSIL and reduce the burden of invasive disease. The high proportion of HGSIL therefore underscores the urgent need to strengthen early screening programs, particularly using cost-effective approaches such as visual inspection with acetic acid (VIA), and Pap smear.

CONCLUSION

The commonest pattern of cervical dysplasia was HGSIL and this indicates the need for organized screening programs for early detection and treatment of CIN. It is recommended that clinicians should adopt a risk-based approach to screening, with particular attention to women with multiparity, early sexual debut, history of genital infections, multiple sexual partners and HIV infection.

The government and other stakeholders should make spirited efforts to equip women with all the necessary information about cervical cancer and establish effective screening programmes that will be available and affordable to reduce the burden of cervical cancer in our environment. Routine screening of all female patients attending all clinics in the hospital should be implemented in all secondary and tertiary hospitals in Nigeria to increase the opportunity of women to screen themselves for cervical cancer.

LIMITATION OF THE STUDY

The limitation of this study was that it was hospital based and so the finding may not be extrapolated to the general population. Also being a retrospective study some data may have been missed in the course of retrieval. Due to advances and changes in health care, further studies would have to be carried out regularly to assess the current situation.

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