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Original Article

Outcomes of Colposcopy in Federal Teaching Hospital Katsina

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ABSTRACT

Background: Cervical cancer develops from well-defined precursor lesions over time. Detected in early or pre-invasive stages, cervical cancer is preventable and curable. Colposcopy with directed biopsy is used in the evaluation of patients with cervical lesions and is the 'gold standard' for the diagnosis of cervical pre-cancer. ***Aim:*** To review colposcopy findings and assess the accuracy of colposcopic examination compared with the histological finding in our centre. **Materials and Methods:** A review of 148 patients who were referred for colposcopy was conducted. Data were extracted from patients' folders and records in the colposcopy and histopathology register and analysed using Statistical Package for Social Science (SPSS), IBM SPSS statistics Version 21. **Results:** The patients' ages ranged from 20-65 years with a mean age of 42 ± 1.7 years. Most patients (58.1%) were referred for colposcopy on account of abnormal Papanicolaou (Pap) smears. Abnormal colposcopic findings were reported in 121 patients, who subsequently had punch biopsy. The biopsy result showed that 21 (17.4%) had normal findings, 29 (24.0%) had cervical intraepithelial neoplasia (CIN) I, 33 (27.3%) had CIN II, 22 (18.2%) had CIN III and 16 (13.1%) had invasive cervical cancer. The accuracy of colposcopy in diagnosing premalignant and malignant cervical lesions was 68.6%. In 48 of the patients, the colposcopy and histology findings were the same, giving a concordance rate of 39.7%. **Conclusion:** The majority of patients referred for colposcopy were found to have a premalignant or malignant lesion of the cervix and our colposcopy is fairly accurate in detecting such lesions.

Keywords: Colposcopy, outcomes, accuracy

INTRODUCTION

According to the World Health Organization (WHO), cervical cancer is the fourth most common cancer in women.[1] However, the prevalence of cervical cancer and the mortality rate associated with it varies in different areas. This is probably because of variations in the screening programs for cervical cancer and the management of premalignant cases.[2] Cervical cancers can be prevented using various screening procedures such as Papanicolaou (Pap) smears, human papillomavirus (HPV) DNA testing, visual inspection with acetic acid (VIA), or Lugol's iodine (VILI). In 1925 Hinselmann first hypothesized visualization of cervical epithelium under magnification.[3]

Colposcopy provides a unique method to study the benign and premalignant lesions of the cervix, vagina and vulva. It is a simple non-invasive procedure which helps in determining the location, size and extent of abnormal lesions and serves for detecting the site for biopsies. Colposcopy is complementary to cytology.[4] The final diagnosis must be made on histopathological examination of the biopsied specimen. [4] The principal goal of colposcopy is the detection of pre-cancerous and cancerous lesions in their early stages, which have great potential for better treatment. It is also used for further investigation of patients with suspicious pre-cancerous and cancerous lesions during routine cervical screening (abnormal cytology ± positive human papillomavirus [HPV] test), abnormal cervical appearance and abnormal vaginal bleeding (especially post-coital bleeding) and any sign suggestive of microinvasive cervical cancer. [5]

Colposcopy is a visual technique that requires training and experience. Its limiting factor is that the accuracy of the method is directly related to the expertise of its operator.[6] The colposcopic diagnosis of cervical neoplasia requires an understanding and recognition of four main features: colour tone and intensity of aceto-whitening, margins and surface contour of aceto-white areas, vascular pattern and iodine staining. Variations in the quality and quantity of these atypical appearances help in differentiating cervical intraepithelial neoplasia (CIN) from other lesions or between types of CINS. Low-grade lesions tend to be thin, less dense, and less extensive, with well-demarcated but irregular, feathery, geographic or angular margins. Vascular features, such as fine punctation and/or fine mosaics in aceto-white areas, may be associated with low-grade CIN. Sometimes, low-grade lesions may be detached from the squamo-columnar junction, and atypical vessels are seldom observed in low-grade lesions. [7] On the other hand, high-grade lesions are associated with dense, opaque, grey-white, aceto-white areas with coarse punctation and/or mosaic and with regular and well-demarcated borders. Visualization of one or more borders within an aceto-white lesion or an aceto-white lesion with varying colour intensity is associated with high-grade lesions. These lesions often involve both lips and may occasionally harbour atypical vessels. CIN III lesions tend to be complex, extending into the endocervical canal. CIN lesions do not contain glycogen and thus do not stain with iodine and remain in mustard or saffron yellow areas.

In our centre, histopathological slides are interpreted according to the WHO classification 2003.[8] The system is descriptive, the morphological changes are regarded as a continuum, and the three grades are defined by arbitrary criteria, the most important of which is the proportion of the epithelium occupied by undifferentiated, basal type cells. Carcinoma-in-situ is grouped with severe dysplasia as CIN 3, and mild and moderate grades of dysplastic change re-classified as CIN 1 and CIN 2 respectively. [9]

Accurate colposcopic evaluation is very important in the prevention of cervical cancer. Inaccurate interpretation of colposcopic findings may cause some lesions to be missed or may cause unnecessary invasive treatments. This study was done to serve as a self-assessment tool for our centre and a reference for future research. It was also done to provide useful information on how well or otherwise the colposcopic services being offered are which may help improve the overall practice.

The study aimed to review colposcopic findings in Federal Teaching Hospital (FTH) Katsina colposcopy unit, and determine the accuracy of colposcopy compared with histological diagnosis.

MATERIALS AND METHODS

This was a four years retrospective study of patients that had a colposcopy done in FTH Katsina from 1st January 2016 to 31st December 2019. The colposcopy was performed by the

gynaecologists trained in colposcopy on each patient, using a Zeiss colposcope on an outpatient basis. The 'colposcopicaly' directed biopsies were taken from those with suspected lesions, using punch biopsy forceps from the most advanced part of the lesion. Multiple biopsies were taken in some patients. The biopsied tissue was immediately placed in formalin, labelled and transported to the laboratory. Biopsy fragments were processed by the usual technique for inclusion in paraffin, Haematoxylin–Eosin stained and interpreted in the Pathology Laboratory of FTH Katsina. Colposcopy findings and relevant clinical information as well as the histology result for each patient are recorded in a record book kept in the colposcopy room. The colposcopy report book was retrieved and relevant information was extracted from this book using a proforma. The information retrieved included age, the indication for colposcopy, colposcopic findings with diagnosis and histologic findings. The data were analysed using Statistical Package for Social Science (SPSS), IBM SPSS statistics Version 21. Quantitative variables were summarized as mean and standard deviation, whereas qualitative data were summarized as percentage and frequency. Colposcopic accuracy was defined as the proportion of patients in whom the colposcopy finding was within one degree of neoplasia (i.e. colposcopic impression of the low-grade lesion was considered accurate if the histology was CIN I or II while the coloscopic impression of the high-grade lesion was considered accurate if the histology result showed CIN II or CIN 3 and colposcopic impression of micro-invasive cancer was considered accurate if the histology result showed CIN III or micro-invasive cancer). Concordance was defined as the proportion of patients in which colposcopy impression was in exact agreement with the histological diagnosis.[7]

RESULTS

During the first 4 years of establishing the colposcopy unit of our centre (2016-2019), a total of 148 patients were registered at the Colposcopy unit of FTH Katsina. The patients' ages ranged from 20-65 years with a mean age of 42 ± 1.7 years. The peak age group was between 40 and 49 years. Nearly 39.9% of the patients were under 40 years of age. This is summarized in table 1.

Table 2 shows the indication for colposcopy in the patients. Most had colposcopy on account of the finding of HSIL on Pap smear (33.8%).

Table 3 shows the colposcopy findings. Most of the patients (33.1%) were assessed as having a high-grade lesion on colposcopic examination.

Table 4 shows the histology results of the biopsied specimen. A biopsy was taken from 121 patients out of 148. Twenty-seven patients who had normal colposcopy examination findings did not have a biopsy taken. Of the 121 patients who had a biopsy taken, 84 had a histological diagnosis of a premalignant lesion, giving a prevalence of 69.4% among patients who had colposcopy in the study period. Sixteen patients had invasive cervical cancer, giving a prevalence of 13.1% among women who had colposcopy during the study period.

Table 1: Age distribution of patients referred for colposcopy

Age	Frequency	(%)
20-29 years	16	10.8
30-39 years	43	29.1
40-49 years	48	32.4
50-59 years	35	23.6
60 and above	6	4.1
Total	148	100.0

Table 2: Indication for colposcopy

Indication	Frequency	(%)
LSIL (including ASCUS) on Pap smear	36	24.3
HSILon Pap smear	50	33.8
Suspicious cervix and postcoital bleeding	34	23.0
Chronic inflammation	28	18.9
Total	148	100.0

*[+]LSIL=Low grade squamous intraepithelial lesion, *ASCUS=Atypical squamous cells of undetermined significance, [+]HSIL=High grade squamous intraepithelial lesion*

Table 3: Colposcopy findings

Finding	Frequency	%
Low grade lesion (CIN[+]I)	31	20.9
High grade lesion (CIN II &III)	49	33.1
Invasive cancer	41	27.7
Normal cervix	27	18.3
Total	**148**	**100.0**

The mean age of patients diagnosed with premalignant or malignant lesions on histology was 42.6±9.56 years, while the mean age of patients with normal or non-malignant histology results was 42.7±9.17 years. There is no statistically significant difference in the mean age of the patients diagnosed with premalignant or malignant lesions and the mean age of the patients that had no premalignant or malignant lesion on histology (t = -0.029, p 0.977).

Table 4: Histology Result

Histological Diagnosis	Frequency	%
Normal cervical tissue	21	17.4
CINI	29	24.0
CIN II	33	27.3
CIN III	22	18.2
Invasive cancer	16	13.1
Total	**121**	**100.0**

Table 5: Accuracy and concordance of colposcopy findings in diagnosing premalignant and malignant cervical lesions with histology as the gold standard

Colposcopy Finding	Number (121)	%
Accuracy		
Accurate	83	68.6
Colposcopy Over estimate	34	20.1
Colposcopy Under estimate	4	3.3
Concordance		
Yes	48	39.7
No	73	60.3

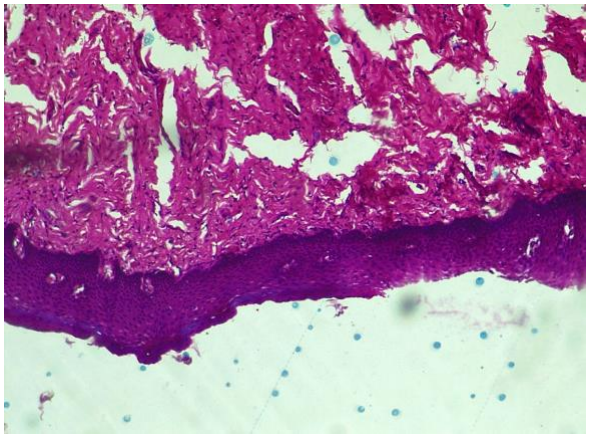

Figure 1: Microphotograph showing normal cervical epithelium (H&E, x 100 magnification)

Table 5 shows the accuracy and concordance of colposcopy using histology as the gold standard for definitive diagnosis. The accuracy of colposcopy in diagnosing premalignant and malignant cervical lesions was found to be 68.6%.

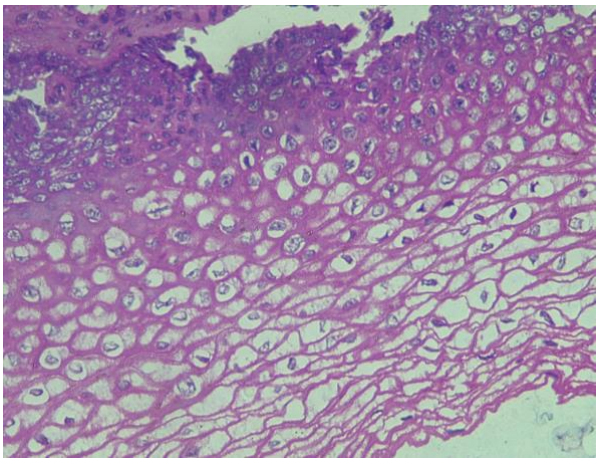

Figure 2: Microphotograph showing CIN 1 (H&E, x 400 magnification)

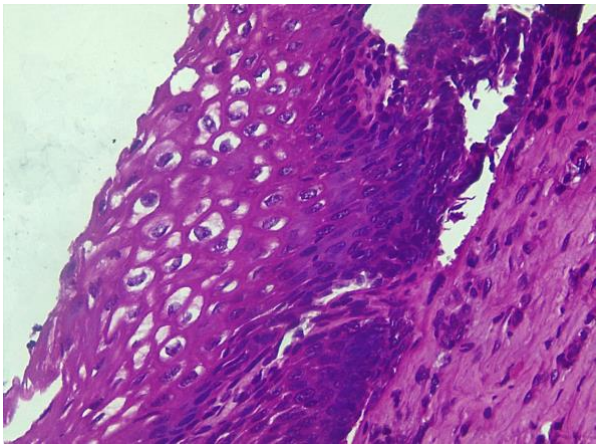

Figure 3: Microphotograph showing CIN II (H&E, x 400 magnification)

In 20.1% of the patients, colposcopy found a lesion that was of a higher grade than that found on histology, while in 3.3% of the patients, colposcopy found a lesion that was of a lower grade than that found on histology. In 48 of the patients, the colposcopy and histology findings were the same, giving a concordance rate of 39.7%.

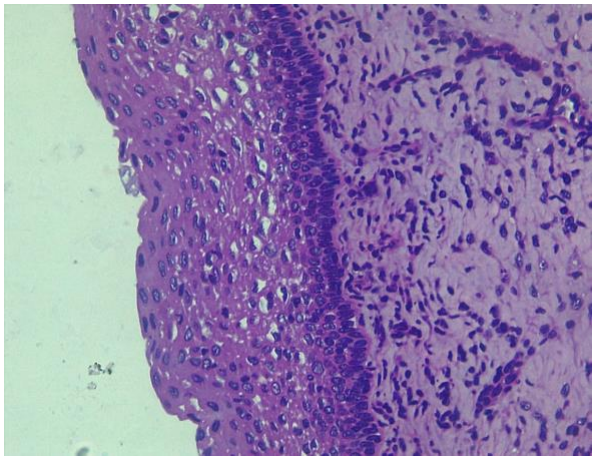

Figure 4: Microphotography showing CIN III (H&E, x 400 magnification)

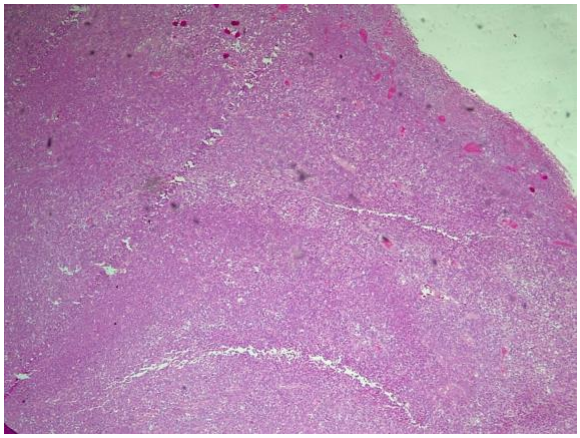

Figure 5: Microphotography showing CIN Squamous cell carcinoma (H&E, x 40 magnification)

DISCUSSION

Cervical cancer is a serious disease but it is probably the most preventable of all female genital cancers. It is a disease for which screening is suitable and early treatment is beneficial. Effective screening programmes can lead to earlier detection of cancer and its precursor lesions, thus leading to a decline in mortality. This study was aimed at evaluating our initial experience with colposcopy. Ninety-one (61.5%) patients were aged 30-49 years. This age group corresponds to the peak incidence of detection of premalignant and malignant disease of the cervix in a study done in Kano Nigeria. [7]

The ASCUS LSIL Triage Study (ALTS) Group, a large, randomized, multicentre trial designed to compare management strategies for women with ASCUS or LSIL cytology results, obtained the following data published in 2001: colposcopic findings for CIN I lesions were found in 51.4% of cases, and only 7% of examinations were considered to be CIN II or more severe. [11] In contrast to this data, in this study we found colposcopic findings for CIN I lesions in 20.9% of cases, and 33.1% of examinations were CIN II or more severe. Similarly, Umar UA in Aminu Kano Teaching Hospital had colposcopic findings for CIN I lesions in 24.4% of cases, and 20% of examinations were CIN II or more severe. The similarity between the results of this study and that of Umar UA in Kano may be due to the same culture and geographical area.[7]

In 2015, Zhao et al conducted a study to determine the prevalence of CIN in the Chinese population. Nearly, 95.9% of the biopsied samples were diagnosed with normal/CIN1, 2.0% were CIN2 and 2.1% were CIN3.[10] In this study, the prevalence of CIN1 was 17.4%, and that of CIN2 was 24.6% and CIN3 was reported as 27.3% from biopsied samples. The difference between the results of this study and those of other studies may be due to culture, firm religious beliefs as well as proper control of sexual relationships.

There is no statistically significant difference in the mean age of the patients diagnosed with premalignant or malignant lesions and the mean age of the patients that had no premalignant or malignant lesion on histology (p 0.977).

Although colposcopy has made an undeniable contribution to the treatment of cervical cancer, the diagnostic accuracy of colposcopy is still controversial. Accuracy issues arise from inconsistencies between visible changes in cervical epithelium and the severity of premalignant lesions The accuracy of colposcopy in diagnosing premalignant and malignant cervical lesions was found to be 68.6%. A meta-analysis on the validity of colposcopy in the diagnosis of early cervical neoplasia by Olayinka BO quoted colposcopic accuracy of 89%.[12]

The colposcopy and histology findings were the same in 48 patients, giving a concordance rate of 39.7%. The agreement of colposcopic diagnosis & biopsy in this study was better than in other studies.[13,14]

CONCLUSION

The majority of patients referred for colposcopy were found to have a premalignant or malignant lesion of the cervix and our colposcopy is fairly accurate in detecting such lesions.

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