



Original Article

# A retrospective analysis of cervical smears for detection of precancerous lesions

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## Keywords:

LSIL;  
HSIL;  
AGC;  
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## ABSTRACT

**Background:** Diseases of the cervix are common in women. Detection of neoplastic lesions is of prime importance in the evaluation of cervical smears although their frequency is less than the non-neoplastic conditions. Reactive and inflammatory conditions, however, may mimic or obscure the dysplastic changes. The aim of this study was to evaluate the frequencies of various inflammatory, reactive and neoplastic lesions in the cervical smears.

**Materials and Methods:** This was a retrospective study of 150 cases of cervical smears collected from medical record section of the hospital and Department of Pathology at National Medical College from April 2013 to April 2015.

**Results:** Of 150 patients who underwent cervical cytology, only 15 cases (10%) had epithelial cell abnormalities. This was followed by reactive cellular changes associated with inflammation (16.7%), infections (5.3%) and atrophy (1.3%). Low grade squamous intraepithelial lesion (6%) was the most common epithelial cell abnormality followed by high grade squamous intraepithelial lesion (2%), atypical glandular cells (1.3%) and squamous cell carcinoma (0.7%).

**Conclusion:** Reactive changes including atrophy were the commonest finding. Squamous intraepithelial lesion was commonest finding among epithelial abnormalities. Glandular intraepithelial lesions and squamous cell carcinoma were also identified. Among infections Trichomoniasis and candidiasis were seen.

## INTRODUCTION

Cervical cancer is the second most common cancer in women following breast cancer.<sup>1</sup> The incidence of cervical cancer has dropped rapidly after introduction of cervical smear screening program.<sup>2</sup> Squamous intraepithelial lesions

are precancerous and identification of which is the focus of cervical screening.

Neoplastic lesions are less frequently seen in cervical smears compared to non-neoplastic lesions. Low grade squamous intraepithelial lesion (LSIL), high grade squamous intraepithelial lesion (HSIL) and atypical glandular cells (AGC) and carcinoma are the common neoplastic lesions.

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Viruses especially high risk strains of Human papilloma virus (HPV) and Herpes simplex virus-2 (HSV-2) are implicated in the carcinogenesis of cervical intraepithelial neoplasia and cervical cancer.<sup>3-5</sup> Intraepithelial neoplasia is a very critical point in the natural history of cervical carcinoma. In present study we evaluated cervical smear findings to detect frequency of various inflammatory, reactive and neoplastic lesions.

## MATERIALS AND METHODS

This was a retrospective study of 150 cases of cervical smears. Prior to the study permission was obtained from institutional review committee. The data was obtained from the medical record section and Department of Pathology at National Medical College, Birgunj, Nepal from April 2013 to April 2015. The 2001 Bethesda system was used to categorize the smears. The findings were tabulated and analyzed in Microsoft Excel version 2007.

## RESULTS

Out of 150 cases 100 cases did not reveal any significant pathology. Age range was 20 to 60 years. Epithelial cell abnormalities were detected in 25-60 yrs of age. Epithelial cell abnormalities were detected in only 15 cases (10%) while eight cases had specific infections (table 1). Among epithelial cell abnormalities LSIL was the commonest findings (60%) followed by HSIL, AGC and squamous cell carcinoma (table 2).

## DISCUSSION

Cervical cancer is one of the leading causes of mortality and morbidity among women throughout the world. In developing countries it is the most common gynecological cancer and one of the leading causes of cancer death among women. Nearly four lacs new cases of cervical cancers are diagnosed annually worldwide and 80% of them are diagnosed in the developing countries.<sup>6</sup> There should be an effective mass screening program aimed at specific age group for detecting precancerous condition before they progress to invasive cancers.<sup>7</sup> Detection of epithelial cell abnormality as per guidelines of Bethesda system is

**Table 1: Frequency of various lesions in cervical smears**

Cervical cytology findings	No. of cases	Percentage
Negative for intraepithelial lesions	100	(66.66%)
Reactive cellular changes associated with inflammation	25	(16.66%)
Bacterial vaginosis	5	(03.33%)
Candidiasis	3	(01.33%)
Atrophic Smear	2	(01.30%)
Epithelial cell abnormalities	15	(10.00%)
<b>Total</b>	<b>150</b>	<b>100%</b>

**Table 2: Frequency of epithelial cell abnormalities**

Epithelial cell abnormalities	No. of cases	Percentage
LSIL	09	(60.00%)
HSIL	03	(20.00%)
AGC	02	(13.30%)
SCC	01	(06.60%)
Total	15	(100%)

mainstay in the detection of precancerous lesion in cervical smears.<sup>8</sup>

In present study 10% of the cervical smears showed epithelial cell abnormalities. Mean age for epithelial cell abnormality was 40 year. Mean age was almost similar for LSIL and HSIL. Mean age of patients was 51.02±10.18 years in the study of Ranabhat et al.<sup>9</sup> Mean age of the patients with diagnosis of LSIL was 32.3 years and for HSIL it was 40.5 years in the study of Bal et al.<sup>10</sup>

In the study by Banik et al involving 1699 patients, the epithelial cell abnormality was seen in 8.18% cases.<sup>11</sup> In the study of Bal et al and Ahmed et al, it was seen in 5% and 1.3% respectively, and the former study involved only 300 cervical smears and later involved 7772 cases.<sup>11,12</sup> In this study the frequency of epithelial cell abnormality is high as compared to other studies which can be as a result of less number of cases involved in the study.

Among epithelial cell abnormalities most common finding was LSIL that was followed by HSIL, AGC and SCC. In the study of Banik et al (n=1699) LSIL was detected in 6.36% of cases, HSIL in 1.18% cases, AGC in 0.12% cases and malignancy in 0.35% of total cases.<sup>11</sup> Considering the total cases in present study LSIL, HSIL, AGC and SCC were 0.06%, 0.02%, 0.01% and 0.006% respectively (table 2), while in the study by Ahmed et al (n=7772) these findings were, LSIL (0.19%), HSIL (0.37%), AGC (0.25%), and SCC (0.10%) respectively.<sup>12</sup> Contrary to above studies in the study of Ranabhat et al HSIL was the commonest finding among epithelial cell abnormality.<sup>9</sup> In present study specific infections were detected only in eight cases. In five cases it was bacterial vaginosis and in three cases it was candidiasis. In the study of Ranabhat et al Candidiasis, Trichomonosis, bacterial vaginosis and Herpes simplex infections were detected in nine cases (1%), four cases (0.45%), 67 cases (7.6%) and in three cases (0.34%) respectively unlike present study.<sup>9</sup> In the study Shurbaji et al Candida was identified in 309 (3.0%) of the 10,370 smears. Ninety-nine (72%) patients were asymptomatic, 29 (21%) had symptoms typical of candidiasis, and nine (7%) had nonspecific symptoms.<sup>13</sup> In present study although the number of cases was not comparable to the study of Shurbati et al, however, the percentage of detection of candida in cervical smears was similar and patient was asymptomatic.

## CONCLUSION

Conventional cervical smear screening remains the effective method of detection of precancerous lesions of cervix. Detection of either squamous or glandular intraepithelial lesions remains mainstay in the prevention of cervical cancer. This test also contributes in detection of various infectious agents that may associated with significant morbidity and cervical carcinogenesis.

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