

# A Retrospective Analysis of 1000 Cases of Cervical Pap Smears

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## ABSTRACT

**Introduction:** Carcinoma of the cervix is the most common cancer of women in developing countries including Nepal. The Pap smear screening is an effective method for identifying intra epithelial lesions of cervix.

**Aims and Objectives:** To determine the type and prevalence of abnormal cervical epithelial lesions in patients presenting with abnormal uterine bleeding at Patan Hospital.

**Materials and Methods:** This is a retrospective study of all the cervical pap smear cases reported to the Department of pathology at Patan Hospital. The duration of study was dated from 1<sup>st</sup> May 2012 to 30<sup>th</sup> April 2014 and total 1,000 cases were enrolled for the study.

**Results:** Most of the patients were in between 41-50 years (30%) followed by 51-60 years (28%) in age. Predominance of inflammatory smears was noticed in 894 (89.4%) cases. In this study, there were 106 (10.6%) cases of abnormal epithelial lesions out of which 27 cases i.e. 2.7% were diagnosed as Atypical squamous epithelial cells of undetermined significance (ASCUS), 43(4.3%) cases were diagnosed as Low grade SIL and 29(2.9%) cases were found to be high grade SIL on Pap smear. In the present study, 7 cases (0.70%) were diagnosed as squamous cell carcinoma which is found to be maximum between 51-70 years of age. The commonest risk factors for squamous cell carcinoma in this study are early marriage, before the age of 20 years and low socioeconomic status.

**Conclusion:** This study concludes that cervical Pap smear test is very helpful in early diagnosis of cervical cancer and it's precursor lesions. It is a simple, safe, inexpensive and painless method for diagnosis of the precancerous lesions and carcinoma of cervix.

**Key words:** Pap smear, Intra epithelial lesion, Cervical Carcinoma,

## INTRODUCTION

Carcinoma of the cervix is the most common cancer of women in developing countries. [1] Each year approximately 4,65,000 new cases of invasive cancer of the cervix are diagnosed and the mortality due to carcinoma of the cervix worldwide is around 2,00,000 per year. [2]

Cervical carcinoma is more common in developing countries than in developed ones, particularly in parts of Asia, South America and Africa. [3] Around 3,200

women are diagnosed with cervical cancer in UK each year. [5] Carcinoma of cervix is the fourth commonest cancer in Singapore, making up 7.2% of all female cancers diagnosed between 1993 and 1997. [4]

In India, the annual incidence of carcinoma of cervix is estimated to be 5,00,000 new cases per year. Carcinoma of cervix accounts for 25-50% of total cancers while for 86-90% of all genital cancers in Indian women. [5]

In Nepal gynecological malignancy, particularly the cervical cancer is the most prevalent cancer. [6]

Cervical carcinoma does not develop directly from normal epithelium but is preceded by a spectrum of intra epithelial neoplastic changes. [7] Upto one third of untreated, pre-cancerous lesion could develop into carcinoma in about 10 to 15 years. [8] The Bethesda system, first introduced in 1989 is currently being followed worldwide to classify these lesions. [9]

The Pap smear screening is an effective and useful screening tool for identifying pre-cancerous intra -epithelial lesions, which are often been treated on an outpatient basis. [10]

The objective of this study was to determine the type and prevalence of abnormal cervical epithelial lesions in patients presenting with abnormal uterine bleeding at Patan Hospital which caters largely to women of low socioeconomic status.

**MATERIALS AND METHODS**

This is a retrospective study of all the cervical Pap smear cases reported to the Pathology department of Patan Hospital from 1<sup>st</sup> May 2012 to 30<sup>th</sup> April 2014. Total 1000 cases were included in this study. A detail history and clinical findings of the patients were noted from the requisition form. All of the cervical smear findings were noted and classified according to The 2001 Bethesda System reporting Pap smear cytology.

**Statistical Analysis**

The data were analyzed using Microsoft Excel 2003 for windows.

**OBSERVATIONS AND RESULTS**

**Table I: Age distribution of patient**

Age(years)	No. of patient	Percentage
<20yrs	0	0%
21-30yrs	271	27.1%
31-40yrs	392	39.2%
41-50yrs	205	20.5%
51-60yrs	101	10.1%
61-70yrs	31	3.1%
Total	1000	100%

Table 1: All the female patients were in the age group of 21-70 years. Most of the patients are in between 41-50 years (30%) of age followed by 51-60 years (28%). Table 1 demonstrates age distribution of all the patients.

**Table II: Table showing the frequency distribution of symptom complexes**

Symptoms	No. of cases	Percentage
Lower abdominal pain	763	76.3%
Abnormal vaginal bleeding	352	35.2%
Whitish per vaginal discharge	391	39.1%
Bleeding on coitus	227	22.7%
Weight loss	142	14.2%
Dysuria	81	8.1%
Anorexia	37	3.7%

Table2:The predominant complaints in all cases were lower abdominal pain 763 cases (76.3%) followed by abnormal vaginal bleeding in 352 cases (35.2%) and whitish discharge per vagina 391 cases (39.1%). Other symptoms were intercoital bleeding, dysuria, weight loss and anorexia.

**Table III: Cervical smear (Pap smear) findings in 1,000 cases**

Diagnosis	No. of cases	Percentage
NIL	894	89.4%
ASCUS	27	2.7%
LSIL	43	4.3%
HSIL	29	2.9%
SCC	07	0.7%
Total	1000	100%

**Table IV: Age distribution pattern in different types of lesion**

Age (years)	Inflammatory smears (IL)	ASCUS	LSIL	HSIL	SCC	Total
21-30	242	01	06	02	-	251
31-40	396	07	11	03	-	417
41-50	179	07	15	09	01	2 11
51-60	57	09	09	11	02	88
61-70	23	03	02	04	04	36
Total	897	27	43	29	07	1000
Percentage	89.7%	2.7%	4.3%	2.9%	0.7%	100%

Table III depicts the different patterns of Pap smear findings. Predominance of inflammatory smears was noticed in 89.4 (89.4%) cases. Abnormal findings were noted in 106 (10.6%) cases. Out of 106 abnormal findings, the prevalence of low grade SIL was 4.3% followed by high grade SIL 2.9% with ASCUS 2.7% and squamous cell carcinoma of cervix 0.7%.

Table IV shows the age distribution of the patients in relation to different types of Pap smear findings. This data shows that inflammatory smear was commonest finding in females of age group of 31-40 years. ASCUS was commonest in the age group 51-60 years. Similarly, squamous intra-epithelial lesions (SIL) are more common in 31-60 years and peak incidence of both LSIL and HSIL is 41-50 and 51-60 years age group. Squamous cell carcinoma was found to be maximum between 61-70 years of age. Among 7 diagnosed of carcinoma, all women were in peri and postmenopausal age group.

**Table V: Relation of Inflammatory smears (IS), ASCUS, LSIL, HSIL, SCC with age at marriage.**

Type of lesion	Age at marriage < 20 yrs	Age at marriage > 20 yrs
IS	278 (27.8%)	616 (61.6%)
ASCUS	11 (1.1%)	16(1.6%)
LSIL	13 (1.3%)	30(3.0%)
HSIL	18 (1.8%)	11(1.1%)
SCC	05 (0.5%)	02(0.2%)
Total	325 (32.5%)	675(67.5%)

In this present study, 7 cases were diagnosed as squamous cell carcinoma in Pap smear and we found out that 5 patient were married before 20 years of age. Similarly all the 7 cases of SCC were from poor socioeconomic status. However, among 894 cases of inflammatory smears, only 278 (31.09%) cases were married before the age of 20 years.

## DISCUSSION

Carcinoma of cervix is the most common malignant tumor of female genital tract in most countries. On a global scale, cancer of cervix is one of the major causes

of death, especially in third world countries, where such screening is often not routinely performed. Invasive cancer of the uterine cervix is preventable when its precursor lesions are detected and treated early. Cervical cytology has been in use now for more than 50 years, and has proven itself to be the main weapon of defence against this disease. As prevention is always better than cure, in Nepal's context also Pap smear screening should be designed to detect the precursor lesions in cervical epithelium which may antedate the development of invasive cancer by several years.

A total 1000 patients were included in this study from 1<sup>st</sup> May 2012 to 30<sup>th</sup> April 2014. Predominance of inflammatory smears was noticed in 894 (89.4%) cases. Cronje et al (2001) reported similar preponderance of inflammatory smears in their study. [11] In another study conducted by Sharma S. (2000) higher frequency of inflammatory smears of 302 cases (45.3) was noted out of 667 cases. [12]

In this study, there were 106(10.6%) cases of abnormal epithelial lesions. The percentage of epithelial abnormalities is 2.3%to 6.6% in USA, from 1.6% to 7.9% in the Middle East and 1.87% to 5.9% in India. [13]

In this study 43(4.3%) cases were diagnosed as Low grade SIL and 29 (2.9%) cases were found to be high grade SIL on Pap smear. Shrivastav et al (1998) reported the incidence of low grade SIL to be 15% in 100 cases of Pap smear. [14] The HSIL was reported as high as 3.75 % in Zimbabwe. [15]

In the present study, 7 cases (0.7%) were diagnosed as squamous cell carcinoma in Pap smear. Other types of malignancy (adenocarcinoma or sarcomas) were not detected. In a similar study done by Alasio et al (2000), 8 cases (2.87%) out of 278 cases were diagnosed as squamous cell carcinoma on Pap smears. [16] Mostafa et al (2000) reported the incidence of squamous cell carcinoma to be 5.93 %. [17]

On correlation with age with inflammatory smears and Atypical

Squamous cell of Undetermined Significance (ASCUS), the maximum numbers of inflammatory smear were presented between the age group of 31-60 years. Similar, correlation with age in inflammatory smears have found in other studies. Among 27 cases of ASCUS of our study 23 cases presented between the age group 31-60 years. However, Bogaertt et al (2001) in their study of 22,160 cases showed the age group with maximum number of cases to be in between 21-30 years. [18]

In this study SIL is more common in 31-60 years and peak incidence of both LSIL and HSIL is 41-50 years. In a similar study done by Bogaertt et al (2001) the common age group of SIL 21-30 years and the peak incidence of HSIL occurred between the ages of 31-40 years. [18] Misra et al found that 51.5% of SIL cases were in above 40 years of age. [19]

On correlation of age with Squamous cell carcinoma, age group for cervical cancer in this study is comparable to that reported in literature and is found to be maximum between 51-70 years of age. Among 7 diagnosed cases 6 women were postmenopausal. All of them had never been screened by the Pap smear test before. Patten et al (1996) studied the common age group for carcinoma cervix and it was found to be 53.4 years. [20] Similarly, Reagin and Hick et al (1953) in their study found the common age of carcinoma cervix to be 48 years. [21] Bogaertt et al (2001) reported the common age group of squamous cell carcinoma as the 6<sup>th</sup> decades. [18] Kobilkova et al (2001) studied that the incidence of cervical cancer had two peaks, one at age group of 40-49 years and another at age group of 55-65 years. [22]

The commonest risk factors for Squamous cell carcinoma in this study are early marriage (before the age of 20 years) and low socioeconomic status. In this study out of 7 cases of SCC 5 patient were married before 20 years of age. However among 894 cases of IS only 278(31.09%) cases were married before the age of 20

years and 616 (68.90%) cases were married after the age of 20 years. Similarly all the 7 cases of SCC were from poor socioeconomic status. Ryan et al considered early marriage as the primi cause. [23] Similarly, in a study done by Ia Vecchia et al (1986) and Herrero R. et al (1989) the single most important risk factor is early age at first intercourse. [24,25] One explanation is that spermatozoa are considered to act as carcinogen to the cervical epithelium. It attacks the immature metaplastic cells in the transforming zone (TZ) causing these cells to transform into cervical intraepithelial neoplasm (CIN). Thus, the longer duration of marriage, the greater is the risk of exposure to spermatozoa and hence higher risk of carcinoma cervix.

The most common clinical presentation in all cases were lower abdominal pain 763(76.3%) followed by abnormal vaginal bleeding 352(35.2%) and whitish discharge per vagina 391(39.1%). Moghal in his study observed menorrhagia (41%) as the most common symptoms. [26]

In this study all the 7 cases of SCC never had cervical screening before. It is appropriate to continue to perform annual Pap tests in women considered to be at high risk for cervical cancer on the basis of the risk factors. Cervical smear can detect the presence of a premalignant lesion allowing for the prevention of cancer. Most of the time, patients present in advanced stage of the disease when treatment is less effective. The widespread use of Pap smear in developed countries has proven that if measures are taken for early detection of these types of cancer mortality and morbidity can be significantly minimized. In Iceland, 100% of the eligible population is screened every 2-3 years and the incidence of carcinoma of the cervix in 1980 had fallen to less than one third of that in 1965. [27] In Denmark, about 40% of the population is screened every 3-5 years and the incidence of carcinoma of the cervix over the 15 years of period fell by about two thirds. [28] It is appropriate to continue to

perform annual Pap tests in women considered to be at high risk for cervical cancer on the basis of the risk. A large scale study encompassing women from different strata and age groups is required to determine the actual incidence of abnormal cervical epithelium lesions in Nepal. Cancer of Cervix should get priority in terms of control programs through mass screening in Nepal.

## CONCLUSION

Carcinoma of the cervix is the most common cancer of women in developing countries including in Nepal. The Bethesda system classifies these lesions as squamous intraepithelial lesions (SIL). These precancerous lesions, if untreated would lead to the development of cervical carcinoma in a period of about 10-15 years.

From this present study, it is concluded that cervical smear test is very helpful in early diagnosis of cervical cancer and its precursor lesions. It is a simple, safe, inexpensive and painless method for diagnosis of the precancerous lesions and carcinoma of cervix. So, it is very appropriate in a country like ours to continue regular PAP tests in women consider being at high risk for cervical cancer.

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