

## CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS AT KING FAISAL HOSPITAL: A SYSTEMATIC REVIEW: APRIL 2009 - APRIL 2011

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### ABSTRACT

**Background:** The cervical cancer is the most common cause of mortality with cancer among women in developing countries. Cervical screening tests are used to detect precancerous lesions in various stages of development when they can be treated. Screening for cervical cancer involves women who are at risk for cervical cancer but have no current signs, symptoms or complaints referable to the cervix; or have no previous abnormal Pap smear and have no high risk factors for cervical cancer. This retrospective study was to review cervical smears evaluated in 24 months and squamous intraepithelial lesions detected among the 1,673 cases studied.

**Methods:** Ethanol and spray fixed cervical smears were received by the laboratory from the outpatients department at King Faisal Hospital and from collaborating institutions. The smears were stained by Papanicolaou method and evaluated on the light microscope. 1,673 smears were selected for this study.

**Results:** There were 19 (19/1673) squamous intraepithelial lesions of various grades. 7 (7/19) were low grade squamous intraepithelial (LSILs), 11 (11/19) were high grade squamous intraepithelial lesions (HSILs) and 1 (1/19) was adenocarcinoma. 5 (5/19) lesions were associated with human papillomavirus (HPV) infection.

**Conclusion:** This review shows a low incidence of cervical squamous intraepithelial lesions due to the high cost of the test in a high cost health care institution, hence the small number of risky women accessing the test. A bigger study to include a spectrum of all risky women is required.

**Keywords:** cervix - intraepithelial - lesions - precancerous - cancer - low grade - high grade - human papillomavirus (HPV) - adenocarcinoma - koilocyte

**Introduction:** Le cancer du col est la cause la plus fréquente de mort par cancer chez les femmes dans les pays sous-développés. Les tests de dépistage cervical sont utilisés pour détecter les lésions précancéreuses à différents stades de développement quand elles peuvent encore être guéries. Le dépistage du cancer cervical concerne les femmes à risque pour ce cancer mais qui ne présentent actuellement aucun signe, symptôme ou plainte relatif au col et qui n'ont jamais eu de frottis anormal auparavant et qui ne portent pas de hauts facteurs de risque pour le cancer du col. Il s'agit d'une étude rétrospective qui revoit les frottis cervicaux examinés en 24 mois et les lésions cervicales squameuses rencontrées parmi les 1673 cas étudiés.

**Méthodes :** Des frottis cervicaux fixes à l'éthanol ou au spray provenant du département de consultation de l'Hôpital Roi Faisal et d'institutions collaboratrices étaient reçus au laboratoire. Les frottis étaient colorés par la méthode de Papanicolaou et examinés au microscope optique. Au total, 1673 frottis ont constitué le matériel de cette étude.

**Résultats:** On a retrouvé 19 (19/1673) lésions squameuses intra épithéliales à divers grades. Sept lésions (7/19) étaient de bas grade (LSILs), 11 (11/19) étaient de haut grade (HSILs) et 1 cas (1/19) était un adénocarcinome. 5 lésions (5/19) étaient associées à une infection au papillomavirus humain (HPV) .

**Conclusion:** Cette revue montre une incidence basse de lésions cervicales squameuses intra épithéliales ; la raison serait le coût élevé du test dans une institution de soins à haut standing, d'où le petit nombre de femmes à risque ayant eu accès au test. Une étude ultérieure plus large incluant un spectre de toutes les femmes à risque serait nécessaire.

**Mots-clés:** col - intra épithéliales - lésions - précancéreuses - cancer - bas grade - haut grade - papillomavirus humain (HPV) - adénocarcinome - koilocyte

### INTRODUCTION

The cervical cancer is the most common cause of mortality with cancer among women in developing countries, despite the fact that it is preventable. In many developing countries, there are no national cancer registries, and data on the cervical cancer incidence and mortality are not accurate, and in most cases may be under-reported [1,2,3,4].

In some countries in Africa such as Uganda, Mali and Zimbabwe, the incidence of cervical cancer has been reported to be on the increase [5, 6].

In the absence of a national cervical cancer screening program, some opportunistic screenings are performed as a public health cancer prevention measure by health care institutions and general practitioners [8, 9].

Cervical cancer is preventable owing to the slow progression from cervical pre-cancerous lesions to cervical cancer. There is a long period of up to ten years or more allowing the opportunity for detection and the treatment of precancerous lesions, thereby preventing their progression to invasive cancer [8,9,10].

Screening for cervical cancer involves women who are at risk for cervical cancer but have no current signs, symptoms, or complaints referable to the cervix; and who have no previous abnormal Pap smear, and have no high risk factors for cervical cancer [8,9,10,11].

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There are many cervical cancer screening tests being studied worldwide, but the cervical cytology (Papanicolaou test, Pap smear, Pap test, or cervical smear) has been in use for over fifty years, and have proved its usefulness. The cervical cytology detects abnormal cells in a sample taken from the cervix. Speculum examination is used to expose the cervix and the cervical os, allowing collection of cervical cells by a spatula, broom or brush [9,10,11,12]. The cells collected are smeared on a microscope slide and are fixed with wet-ethanol or with spray. The fixed smears are then sent to the cytology laboratory for processing and microscopic evaluation [9,11]

In Rwanda, the accurate burden of cervical cancer, like many other cancers, is not known, but can be estimated from the referrals of such cases to the major health care institutions.

We review 1,673 cases of cervical smears received by the pathology department at King Faisal Hospital. Of these, 1,479 were submitted by the out-patient department of King Faisal Hospital, and 194 cases originated from the collaborating institutions, namely the Kigali university teaching hospital (Rwanda), Hospital "la Croix du Sud" of Remera (Rwanda), and the Burundi Medical Research Centre.

Specimens received from research grant holders for analysis were not included in this review.

## METHODS

Cervical smears were received from the out-patient department at King Faisal Hospital, collaborating healthcare institutions and general practitioners. At the collection, the smears were fixed in 95% ethanol or spray fixatives while the cellular smeared material was still wet air-dried and then brought to the laboratory. At the laboratory, the specimens were registered and given to laboratory numbers after verification of patient and pertinent clinical data. The smears were then immersed in 95% ethanol for a minimum of 15 minutes and then in 50% ethanol for 10 minutes before hydrating and staining with Papanicolaou method.

A total of 1,673 satisfactory cervical smears were evaluated microscopically, and a report written on the laboratory request form before entering it into a computer. The classification of abnormal epithelial cell lesions was based on the Bethesda 2001 system [14], which is a two-tier low grade and high grade lesions.

The detection of human papillomavirus (HPV) infection was based on the identification of the koilocyte.

## RESULTS

Of the 1673 cervical smears, there were 19 (19/1673) squamous intraepithelial lesions of varying grades. Out of the 19 squamous intraepithelial lesions, 7 (7/19) were low grade squamous intraepithelial lesions (LSILs), 11(11/19) were high grade squamous intraepithelial lesions (HSILs), and 1(1/19) was adenocarcinoma. 5 (5/19) squamous intraepithelial lesions were associated with human papillomavirus (HPV) infection on identification of the koilocyte.

**Table 1:** Cervical SILs from the out-patient department of the KFH

CASE NUMBER	GRADE OF LESION
1.	LSIL (HPV)
2.	LSIL
3.	HSIL
4.	LSIL (HPV)
5.	HSIL
6.	HSIL
7.	LSIL
8.	HSIL
9.	HSIL
10.	HSIL/HPV

Total number of smears from within KHK, K = 1479

Total number of SILs = 10

Percentage of SILs = 0.68%

HPV- Associated lesions = 30.0%

**Table 2:** Cervical SILs from external centers

CASE NUMBER	GRADE OF LESIONS
1.	HSIL
2.	LSIL (HPV)
3.	LSIL
4.	HSIL
5.	HSIL
6.	LSIL (HPV)
7.	HSIL
8.	ADENOCARCINOMA
9.	HSIL

Total number of external smears = 194

Total SILs in external smears = 9

Percentage of SILs in external smears = 4.6%

HPV - Associated lesions = 22.2%

NILM: Negative for intraepithelial lesion;

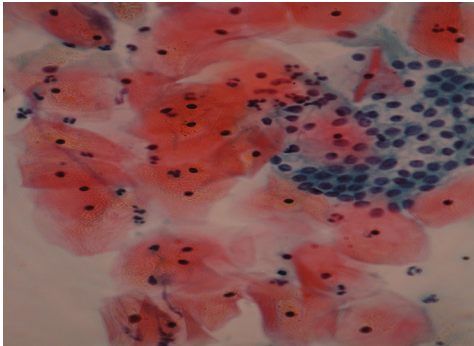
LSIL: Low grade intraepithelial lesion

HSIL: High grade intraepithelial lesion.

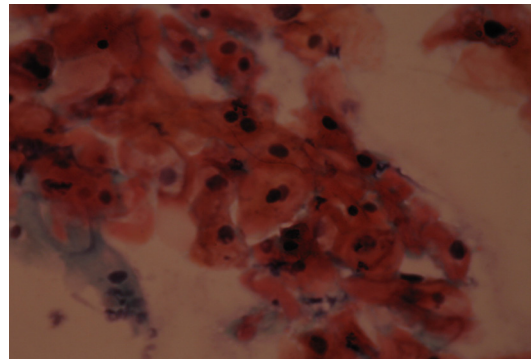
## DISCUSSION

There were limitations to this review. First, the patients who sought health care services were a select population who could afford to pay for this service at King Faisal Hospital. Tied to this, was the small number of cases, as the most vulnerable and most risky women could not afford to access this service at King Faisal Hospital. Consequently, the number of lesions seen in this study may be an underestimate of the actual situation in the general population.

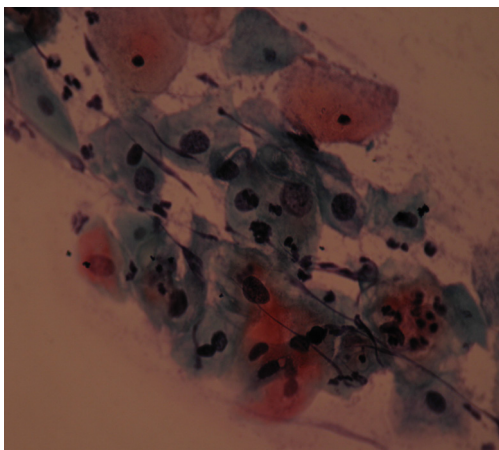
The cervical cancer prevention by means of cervical cytology is not universally accessible to all women at risk. This form of cancer prevention will probably continue for many years, while developments in prophylactic HPV



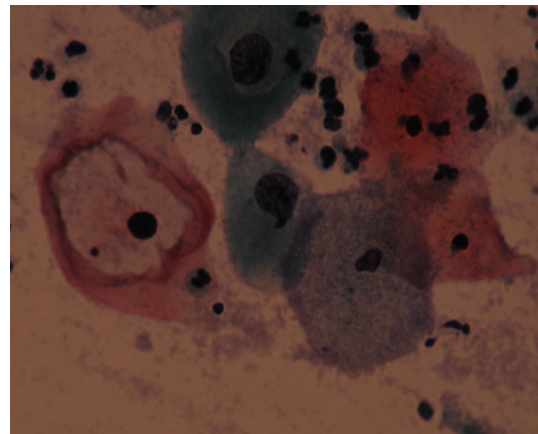
**Figure 1: NILM:** normal Cervical smear: superficial squamous nuclear and endocervical cells. Pap. stain, ×40



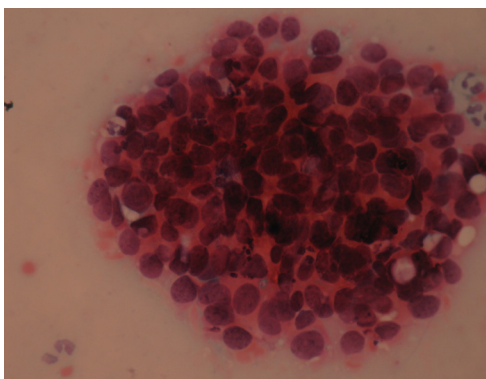
**Figure 2: LSIL:** cells from HPV-infected cervix: cytoplasmic atypia Pap stain. ×40



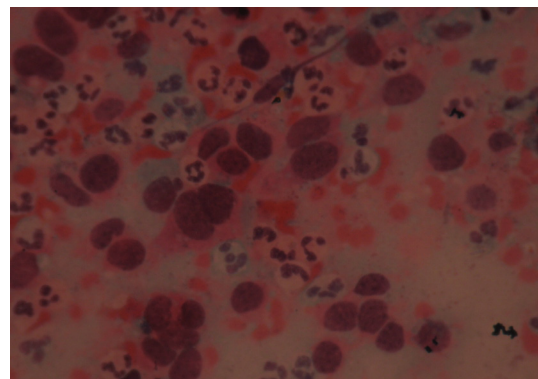
**Figure 3: LSIL:** cells from HPV-infected cervix: nuclear Enlargement hyperchromasia and Clumped chromatin. Pap. stain. ×40



**Figure 4: LSIL:** Koilocytic atypia: hyperchromasia, cytoplasmic cavity surrounded by dense rim of cytoplasm. Pap.stain ×40



**Figure 5: HSIL:** hyperchromasia, Nuclear enlargement and Overlapping of cells. Pap.stain x 40



**Figure 6: HSIL:** hyperchromasia, nuclear enlargement and binucleation. Pap stain. ×40

NILM: Negative for intraepithelial lesion;  
 LSIL: Low grade intraepithelial lesion  
 HSIL: High grade intraepithelial lesion

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The cervical cancer prevention by means of cervical cytology is not universally accessible to all women at risk. This form of cancer prevention will probably continue for many years, while developments in prophylactic HPV

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