

Cytological Findings in Cervical Smear in Al-Anbar Governorate

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ABSTRACT:

BACKGROUND:

Cervical cancer is the 3rd most common cancer in women globally. There is variation in incidence & mortality between developing & developed countries is attributed to the national screening programs in the developed countries to detect cervical changes in addition to human papilloma virus vaccination. Human papillomavirus (HPV) is well known as a direct cause of cervical cancer.

OBJECTIVE:

This study designed to detect the percentage of cervical changes in Al-Anbar governorate.

Study design: A cross-sectional study for detection of abnormal cervical smears.

Study setting: Private clinic of gynecology & obstetric governorate & private laboratory of histopathology & cytology in al-Anbar.

PATIENTS AND METHODS:

A prospective study was carried out from January 2012 - July 2014, 450 patients were included in this study diagnosed at private laboratory in Al-Anbar governorate. Bethesda system was used to assess these Pap smears. Patients were analyzed for clinical data with special focusing on the age and the chief complaint.

Pap smears were prepared from patients presenting with complaints like abnormal vaginal discharge, post-coital bleeding, irregular vaginal bleeding and dyspareunia.

RESULTS :

Among total of 450 patients, commonest age group at time of presentation was between 40-49 years (172 patients). Most of the patients were presented with vaginal discharge include one hundred eighty eight patients (188) (41.8%). Others were presented with vaginal discharge include one hundred eighty eight patients (188) (41.8%), others presented with vaginal bleeding, post coital bleeding & dyspareunia. The results of cervical smears were classified into non specific inflammation (150 cases) (33.3%), and abnormal pap smear results (300 cases). The results of abnormal pap smear include ASC-US (40 cases) (8.9%), LSIL (99 cases) (22%), HSIL (45 cases) (10%), squamous cell carcinoma (25 cases) (5.5%), AGC (21 cases), adenocarcinoma (0 case) & kiliocytosis (70 cases) (15.6%).

CONCLUSION:

Regular cervical Pap smear is highly advisable to recognize premalignant cervical changes in sexually active female. HPV play a major role in development of cervical cancer. Cervical cytology is a simple, safe and effective test to detect premalignant and malignant lesions of cervix at an early stage, so help the clinicians in management of the patients.

KEY WORDS: cervix, pap smear, cytological findings.

INTRODUCTION:

Cervical cancer is the 3rd most common cancer in women globally but in developing countries it is the most common cancer among women. At 2008, 275000 female died due to cervical cancer & 88%

of them in the developing countries. ⁽¹⁾

This variation in incidence & mortality between developing & developed countries is attributed to the national screening programs in the developed countries to detect premalignant changes in the cervix in addition to human papilloma virus vaccination.

Over one million women all over the world are currently having cervical cancer & many of them

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have no health service for prevention or proper management.⁽²⁾

Cervical cancer can be prevented or at least has high chance of cure if diagnosed early by detection of premalignant state using Pap smear. In USA, cervical screening has decreased the incidence & number of deaths due to invasive cervical cancer by 70%.⁽³⁾

The cytological screening program for cervical cancer were laid by two publications; Bales in 1927 and Papanicolaou in 1928 which describe the morphology of cervical cancer cells in vaginal samples.⁽⁴⁾ Cervical cytology become the most important standard screening test for cervical cancerous lesions and premalignant cervical lesions with the introduction of the Papanicolaou (Pap) smear in 1941.⁽⁵⁾

In 1951, Papanicolaou published a book named Atlas of Exfoliative Cytology describing in details the cytology of healthy & unhealthy tissue.⁽⁶⁾ This was the cornerstone for the wide use of a screening test for cervical cancer named as Pap smear.

The Bethesda system (TBS) is a system for reporting cervical or vaginal cytologic diagnosis & for reporting Pap smear results.⁽⁷⁾ The name came from the location (Bethesda, Maryland) of the conference that establish this system.⁽⁸⁾

The Bethesda conferences and their ensuing output have also set the stage for standardization of terminology across multiple organ systems, including both cytology and histology, have initiated significant research in the biology and cost-effective management for human papillomavirus-associated anogenital lesions, and, finally, have fostered worldwide unification of clinical management for these lesions.⁽⁹⁾

Human papillomavirus (HPV) is well known as a direct cause of cervical cancer. Prevalence of HPV in patients with cervical cancer is 99.7%.⁽¹⁰⁾

There are nearly 150 subtypes of HPV & these affecting the anogenital area are categorized into high risk & low risk depending on their association with cervical malignancy.⁽¹¹⁾ Two strains of the HPV virus; HPV 16 and HPV18 are known to be responsible for 70% of all cases of cervical cancer. These types of HPV infection don't have any symptoms, so many women won't realize they have the infection.⁽¹²⁾

MATERIALS AND METHODS:

From January 2012 - July 2014, 450 patients were included in this study (prospective study) received from Falluja, Heet and Hadeetha and Al-Ramadi. The patients were received by gynecologist (private clinic) and diagnosed to had abnormal cervical

appearance & complaints, then the patients were sent to private laboratory of histopathology & cytology where cervical Pap smear done by histopathologist. This study was carried out in Al-Anbar governorate.

Patients were analyzed for clinical data with special focusing on the age and the chief complaint.

Pap smears were prepared from patients presenting with complaints like abnormal vaginal discharge, post-coital bleeding, irregular vaginal bleeding and dyspareunia.

The patient was placed in dorsal lithotomy position and a sterile disposable speculum was introduced through vagina to visualize cervix. The material obtained by Ayre's spatula that placed in the cervix near squamo-columnar junction and rotated through 360°.

The cellular material thus obtained was smeared on a two clean glass slide, fixed in 95% ethyl alcohol, stained with Papanicolaou stain and reporting cervical smear by using Bethesda system.

Interpreting Cytology Results:

Results from cervical cytology specimens are reported according to the 2001 Bethesda System Classification, as listed below:⁽¹³⁾

1-Negative for intraepithelial lesion or malignancy.

2-Epithelial cell abnormality:

Squamous cell

-Atypical squamous cells (ASC) of undetermined significance (ASC-US) or atypical squamous cells that cannot exclude HSIL (ASC-H)

-Low-grade squamous intraepithelial lesions (LSIL), includes human papillomavirus (HPV), mild dysplasia, and CIN 1

-High-grade squamous intraepithelial lesions (HSIL), includes moderate to severe dysplasia, carcinoma in situ, CIN 2, and CIN 3

-Squamous cell carcinoma.

Glandular cell

-Atypical glandular cells (AGC), specify endocervical, endometrial, or not otherwise specified (NOS)

-Atypical endocervical cells, favor neoplastic, specify endocervical or NOS.

-Endocervical adenocarcinoma in situ (AIS)

-Adenocarcinoma.

RESULTS:

This study includes four hundred fifty patients (450) were in the age group of 20-69 years. The largest number of patients included were the age group between 40-49 (172 patients) (38.2%) as shown in table -1.

Table 1: Age of patients with their corresponding number & percentage.

Age	Number	Percentage (%)
20-29	55	12.2 %
30-39	73	16.2 %
40-49	172	38.3 %
50-59	90	20 %
60-69	60	13.4 %
Total	450	100 %

Most of the patients were presented with vaginal discharge include one hundred eighty eight patients (188) (41.8%) , others presented with vaginal bleeding, post coital bleeding & dyspareunia as shown in table -2.

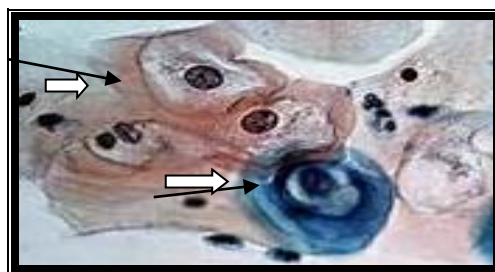
Table 2: Pattern of patients' presentations with corresponding number & percentage.

Pattern of presentation	Number	Percentage (%)
Vaginal discharge	188	41.8 %
Irregular vaginal bleeding	130	28.9 %
Post coital bleeding	99	22 %
Dyspareunia	33	7.3 %
Total	450	100 %

The results of cervical smears were classified into non specific inflammation (150 cases) (33.3 %) , and abnormal pap smear results (300 cases). The results of abnormal pap smear include ASC-US (40 cases) (8.9 %) , LSIL (99 cases) (22 %) , HSIL (45 cases) (10%) , squamous cell carcinoma (25 cases) (5.5%) , AGC (21 cases), adenocarcinoma (0 case) & koliocytosis (70 cases) (15.6 %) as shown in table-3 & figure-1

Table 3: Pap smear results.

Cytological findings	Number	Percentage (%)
Non-specific inflammation	150	33.3 %
ASC-US	40	8.9 %
LSIL	99	22 %
HSIL	45	10 %
Squamous cell carcinoma (SCC)	25	5.5 %
AGC	21	4.7 %
Adenocarcinoma	Nil	0 %
Koliocytosis	70	15.6 %
Total	450	100 %

**Figure 1: koliocytes in cervical smear. Stained with papanicolaou stain. 40X.**

CYTOLOGICAL FINDINGS IN CERVICAL SMEAR

Ninety patients (37.5%) had non-specific inflammation, twenty five (10.4%) patients with ASC-US, fifty seven (23.7%) patients with LSIL, fifteen patients (6.3%) with HSIL, five patients (2.1%) with SCC, two patients (0.8%) with AGC & forty six patients (19.2%) with kiliocytosis were in age group between 20-40 years , where as sixty patients (28.6%) had non-specific inflammation, fifteen patients (7.1%) with ASC-US, forty two patients (20%) with LSIL as shown in figure-2,

thirty patients (14.3%) with HSIL as shown in figure-3, twenty patients (9.5%) with SCC, nineteen patients (9.1%) with AGC & twenty four patients (11.4%) with kiliocytosis were in age group above 40 years as shown in table -4. The correlation of HSIL & SCC with age group over 40 were significant (P value < 0.01) while non-specific inflammation was more significant in young age group (20-40 years) (P value <0.05).

Table 4: Correlation of Pap smear results with age.

Age (years)	Non sp. Inflam.	ASC-US	LSIL	HSIL	SCC	AGC	KOLI.	Total
20-40	90 (37.5%)	25 (10.4%)	57 (23.7%)	15 (6.3%)	5 (2.1%)	2 (0.8%)	46 (19.2%)	240 (53.3%)
Older than 40	60 (28.6%)	15 (7.1%)	42 (20%)	30 (14.3%)	20 (9.5%)	19 (9.1%)	24 (11.4%)	210 (46.7%)
Total	150 (33.3%)	40 (8.9%)	99 (22%)	45 (10%)	25 (5.5%)	21 (4.7%)	70 (15.6%)	450 (100%)

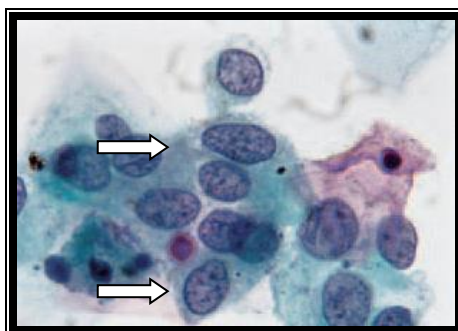


Figure 2: LSIL in cervical smear. Stained with papanicolaou stain. 40X.

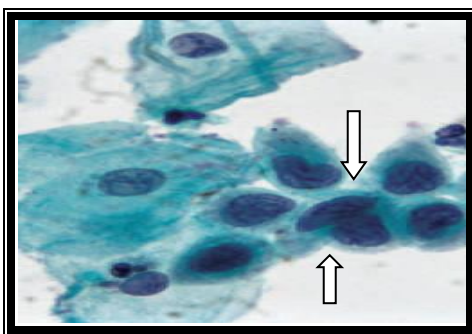


Figure 2: HSIL in cervical smear. Stained with papanicolaou stain. 40X.

Among cases who presented with vaginal discharge ; seventy three cases (38.8%) had non- specific inflammation, twenty one cases (11.2%) had ASC-

US (significant correlation "P value <0.01") , forty five cases (23.9%) had LSIL, thirteen cases (6.9%) had HSIL, four cases (2.1%) had SCC , twelve

cases (6.54%) had AGC & twenty cases (10.6%) had kiliocytic changes(significant correlation "P value <0.01") .

Among cases who presented with vaginal bleeding; thirty three cases (25.4%) had non- specific inflammation, thirteen cases (23.1%) had LSIL (significant correlation "P value <0.01"), ten cases (7.7%) had HSIL, fifteen cases (11.9%) had SCC (significant correlation "P value <0.01") , four

cases (3.1%) had AGC & thirty eight cases (29.2%) had kiliocytosis.

While patients presented with post coital bleeding; twenty cases (20.2%) appear to had LSIL & twenty cases (20.2%) appear to had HSIL (significant correlation "P value <0.01").

Fifteen cases (45.5%) were presented with dyspareunia appear to had nonspecific inflammation as shown in table-5.

Table 5: Correlations of patients complaints & pap smear results.

Patients complaints	Non sp. Inflam.	ASC-US	LSIL	HSIL	SCC	AGC	Kolio.	Total
Vaginal discharge	73 (38.8%)	21 (11.2%)	45 (23.9%)	13 (6.9%)	4 (2.1%)	12 (6.54%)	20 (10.6%)	188 (41.8%)
Vaginal bleeding	33 (25.4%)	0	30 (23.1%)	10 (7.7%)	15 (11.9%)	4 (3.1%)	38 (29.2%)	130 (29.8%)
Post coital bleeding	29 (29.3%)	11 (11.1%)	20 (20.2%)	20 (20.2%)	6 (6.1%)	3 (3%)	10 (10.1%)	99 (22%)
dyspareunia	15 (45.5%)	8 (24.2%)	4 (12.1%)	2 (6.1%)	0	2 (6.1%)	2 (6.1%)	33 (7.3%)
Total	150 (33.3%)	40 (8.8%)	99 (22%)	45 (10%)	25 (5.6%)	21 (4.7%)	70 (15.6%)	450 (100%)

DISCUSSION:

Detection of premalignant conditions of the cervix makes cervical cancer a preventable disease or at least has a high chance of cure if diagnosed early.

Cervical cancer ranks as the 12th cause of female cancer in Iraq. About 291 new cervical cancer cases are diagnosed annually in Iraq (estimations for 2012) & 244 of them are above the age of 40 years. (14)

In Iraq, national screening program not established yet & Pap smear done for patients with history of postcoital bleeding or abnormal vaginal discharge with unhealthy looking cervix. This may miss a lot of asymptomatic premalignant cases.

Al-Anbar governorate lie in the west of Iraq & witnessed long periods of instability making cancer registration imprecise or unavailable for some years. Reliable data are needed for proper assessment of the extent of this health problem & define plans in the future. (15)

In our study the prevalence of abnormal Pap smears were 66.7% while the prevalence of abnormal Pap smears was 4.3% in a study done at Saudi Arabia & only 1.28% of the cases have abnormal Pap smear in a big study done at Kirkuk governorate in Iraq. (21) This high prevalence in our study is explained by criteria of patients included in our study in which the women selected have certain symptoms related to cervical pathology.

On comparing this finding with a study performed in Baghdad province using similar selection criteria, the prevalence of abnormal pap smear was lower than that found in Baghdad which was 86%. (22)

In this study, non-specific inflammation was found in 33% of the cases and this finding is significantly associated with age younger than 40 years. These changes are classified as negative smear as they do not increase the risk of developing cervical cancer in the future. (23)

Our study kiliocytosis which is cytological changes related to HPV infection found in 15.6% of the cases & this is more than double the incidence found in Baghdad province which was 6%. (24)

Our findings showed a significant correlation between HSIL & SCC and age above 40 years. This confirm a similar result in a study done in Kirkuk which show that mean age of squamous intraepithelial lesion is 47 years. (22) A similar conclusion was noted by a study done in Arbil city. (25)

However, this is in contrast with the results found in Baghdad (19) and Karbala city at the south of Iraq which found that there is no correlation between age and Pap smear abnormalities. (25)

Regarding the presenting symptom, our study showed significant association between LSIL and

irregular and postcoital bleeding and this is in agreement with the previous studies. ^(21,25) Our study showed that SCC most commonly present with irregular vaginal bleeding making the vaginal bleeding the most consistent symptoms in premalignant and malignant conditions of the cervix.

In our study, the age of patients with LSIL was between 20-40 years, and those with HSIL and invasive carcinoma were older than 40 years. Elhakeem *et al.*, also recorded a progressive increase in development of LSIL & invasive carcinoma with increasing age. ⁽²⁶⁾ Afrakhteh *et al.*, found age of patients with LSIL, HSIL and invasive cancer to be between 30-40 years. The results are in concordance with present study. ⁽²⁷⁾

In our study vaginal discharge was the most common presenting symptom in patient with non specific inflammation while other study emphasized the significance of vaginal discharge and its association with neoplastic changes in the cervix. ⁽²⁸⁾

CONCLUSION:

Regular cervical Pap smear is highly advisable to recognize premalignant cervical changes in sexually active female. HPV play a major role in development of cervical cancer. Cervical cytology is a simple, safe and effective test to detect premalignant and malignant lesions of cervix at an early stage, so help the clinicians in management of the patients.

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