

Evaluation of Pap smear data in Baghdad province

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Abstract- Background: Cervical cancer is readily preventable when effective programs are conducted to detect and treat its precursor lesions.

Aim of study: This study aimed to estimate the prevalence of abnormal cervical smears for women attending gynecology clinic in Baghdad province.

Methodology: This is a retrospective study of a 100 Pap smears performed for women attending gynecological clinic in Baghdad with unhealthy cervix during the year 2013. Results of pap smear were classified according to Bethesda scoring system.

Results: A total of 100 Pap smears for women age 13 to 64 years old. fourteen smears were negative mentioned as (non specific) while eighty-six cases came with abnormal Pap smears consisting of , forty eight with low grade squamous intraepithelial lesions(LSIL), and twenty nine cases were having high grade squamous intraepithelial lesions(HSIL), six cases have Koilocytosis , three cases came with squamous intraepithelial lesions with undetermined significance and atypical glandular cells(ASCUS & AGUS). Unexpectedly there was a high incidence (77%) of SIL. There was a significant correlation between abnormal pap smears and parity, Hormonal contraception, postcoital bleeding and vaginal discharge.

Conclusion: A significant correlation between Pap smear abnormality and high parity, hormonal contraception, postcoital bleeding and vaginal discharge, were evident in this study.

Index Terms- Cervical cancer, Pap smear, Screening, Iraq

I. INTRODUCTION

Worldwide, approximately 500,000 new cases of cervical cancer and 274,000 deaths are attributed to cervical cancer every year, making cervical cancer the second most common cause of death from cancer in women [1]. According to the recent data, approximately 85% of the new cases of cervical cancer (estimated of 493,000 cases worldwide) and deaths from cervical cancer that take place each year affect women in developing countries [2]. Fortunately, the incidence of cervical cancer has decreased by more than 50% in the past 30 years, largely due to the increasing use of cervical cancer screening with cervical cytology [3].

Although worldwide cervical cancer rates have decreased dramatically with the increment in screening efforts, incidence and prevalence in underdeveloped countries remains high due to lack of screening programs [4].

Cytological screenings for precancerous lesions and cancer of the cervix and subsequent treatments of these lesions have

been effective in reducing the incidence and mortality of cervical cancer [4].

Pap smear is relatively a simple, cost-effective, noninvasive screening test that is carried out in conjunction with gynecologic examination at the primary health care level to detect abnormalities that might lead to cervical cancer [5].

The pathogenesis of cervical cancer and precancerous lesions in Muslim countries might be different in comparison with western societies due to the differences in the risk factors [6].

Evidence shows that approximately 99 -100% of cervical cancers are attributed to infection by high risk sub-types of the [human papilloma virus](#) (HPV). HPV represents a family of double-stranded, circular DNA viruses that can infect skin or mucosal cells, including the anogenital region and the oral cavity, and may be transmitted easily via sexual intercourse or direct contact [7, 8].

The Pap test, when combined with a regular program of screening and appropriate follow-up can reduce cervical cancer deaths by up to 80% [9].

II. MATERIAL AND METHOD

This is a retrospective study of some Pap smears performed for women with unhealthy cervix attending gynecology clinic in Baghdad during the year 2013.

Data were collected about patient's age, parity, age of marriage, patient complaint, if a previous test was done, mode of contraception & clinical findings.

All Pap smear samples were sent for cytology reporting, pap smear results which adopt descriptive diagnoses, (benign cellular changes including infections; no specific inflammation and koilocytosis; epithelial cell abnormalities including Atypical squamous cells of undetermined significance ASCUS; atypical glandular cell of undetermined significance AGUS and various grades of squamous intraepithelial lesion(SIL).

A total number of 100 pap smears were studied. A relationship between cervical cytology results and all variables in the data collected were studied.

All cytological smears were collected by the Ayre's spatula and slides were evaluated at the cytology lab, Cytological diagnoses were reached according to the Bethesda Scoring system and other classifications. Abnormal results were reported according to the [Bethesda Scoring System](#) [10]. they include:

- Squamous cell Lesions (SIL):
 - Atypical squamous cells of undetermined significance (ASC-US).

- Atypical squamous cells – cannot exclude HSIL (ASC-H).
- Low-grade squamous intraepithelial lesion (LGSIL or LSIL).
- High-grade squamous intraepithelial lesion (HGSIL or HSIL).
- [Squamous cell carcinoma](#).
- Glandular epithelial cell Lesions:
 - Atypical Glandular Cells not otherwise specified (AGC or AGC-NOS).

Statistical analysis was performed with the SPSS. Univariate data were summarized using standard descriptive statistics, tabulation of categorical variables and histograms of numerical variables. T-test was used to compare means of the continuous variables. Exact tests were used to calculate the p value. In all statistical analyses, a P value < 0.05 was considered significant.

III. RESULTS

The present study includes 100 women. The cervical smears results were classified as non specific inflammation which constitute fourteen cases, and eighty six cases with abnormal pap smear results, (three cases with ASCUS and AGUS, six cases with koilocytes, and abnormal squamous intraepithelial lesion (LSIL,HSIL) were found in seventy seven cases) as shown in table 1

Table (1) Results of pap smear (N=100)

| Results | Frequency and percent |
|--------------|-----------------------|
| Non-specific | 14(%) |
| LSIL | 48(%) |
| HSIL | 29(%) |
| Koilocytosis | 6(%) |
| ASCUS/AGUS | 3(%) |
| Total | 100(%) |

Although more cases of LSIL seen in women age 20-39, and more cases of HSIL seen in women older than 39, the difference was not statistically significant $p=0.015$, Tab (2)

Table (2) correlation of age groups with Pap smear results.

| Age groups (years) | Result of Pap smear | | | | | Total |
|---------------------|---------------------|------|------|--------------|------------|-------|
| | Non-specific | LSIL | HSIL | Koilocytosis | ASCUS/AGUS | |
| 20-39 years | 6 | 31 | 8 | 2 | 2 | 49 |
| | 12% | 63% | 16% | 4% | 4% | 100% |
| Older than 39 years | 8 | 17 | 21 | 4 | 1 | 51 |
| | 16% | 33% | 41% | 8% | 2% | 100% |
| Total | 14 | 48 | 29 | 6 | 3 | 100 |
| | 14% | 48% | 29% | 6% | 3% | 100% |

$p = 0.015$

Table 3. Correlation of parity with Pap smear results.

| Parity | Result of Pap smear | | | | | Total |
|-------------|---------------------|------|------|--------------|------------|-------|
| | Non-specific | LSIL | HSIL | Koilocytosis | ASCUS/AGUS | |
| Nulliparous | 4 | 0 | 2 | 0 | 0 | 6 |
| | 67% | 0% | 33% | 0% | 0% | 100% |
| Primiparous | 2 | 3 | 0 | 0 | 1 | 6 |
| | 33% | 50% | 0% | 0% | 17% | 100% |
| Multiparous | 8 | 45 | 27 | 6 | 2 | 88 |
| | 9% | 51% | 31% | 7% | 2% | 100% |

| | | | | | | |
|-------|-----|-----|-----|----|----|------|
| Total | 14 | 48 | 29 | 6 | 3 | 100 |
| | 14% | 48% | 29% | 6% | 3% | 100% |

$p = 0.003$

Table 3 shows the relation of parity with Pap smear result. We found larger numbers of abnormal Pap smear results in multiparous patients in which LSIL & HSIL showed higher incidence than primiparous (P value 0.003).

Table 4. Correlation of age of marriage with Pap smear results

| Age of marriage (years) | Result of Pap smear | | | | | Total |
|-------------------------|---------------------|-------|-------|--------------|------------|--------|
| | Non-specific | LSIL | HSIL | Koilocytosis | ASCUS/AGUS | |
| Less than 20 years | 6 | 28 | 20 | 1 | 0 | 55 |
| | 10.9% | 50.9% | 36.4% | 1.8% | 0.0% | 100.0% |
| More than 20 years | 8 | 20 | 9 | 5 | 3 | 45 |
| | 17.8% | 44.4% | 20.0% | 11.1% | 6.7% | 100.0% |
| Total | 14 | 48 | 29 | 6 | 3 | 100 |
| | 14.0% | 48.0% | 29.0% | 6.0% | 3.0% | 100.0% |

$p = 0.03$

Pap smear abnormalities found to be more prevalent with age of marriage less than 20 year particularly cases of SIL (LSIL and HSIL) which show 87.3% in comparison with other findings. $p = 0.03$ Tab (4)

Table 5 correlation of contraception methods with Pap smear result.

| Contraception | Result of Pap smear | | | | | Total |
|-------------------------------|---------------------|------|------|--------------|------------|-------|
| | Non-specific | LSIL | HSIL | Koilocytosis | ASCUS/AGUS | |
| Pills | 2 | 31 | 10 | 3 | 1 | 47 |
| | 4% | 66% | 21% | 6% | 2% | 100% |
| Intrauterine device | 2 | 12 | 6 | 2 | 1 | 23 |
| | 9% | 52% | 26% | 9% | 4% | 100% |
| Condom | 0 | 0 | 1 | 0 | 0 | 1 |
| | 0% | 0% | 100% | 0% | 0% | 100% |
| Mixed(pills and other method) | 2 | 2 | 4 | 0 | 0 | 8 |
| | 25% | 25% | 50% | 0% | 0% | 100% |
| coitus interrupts | 0 | 2 | 1 | 0 | 0 | 3 |
| | 0% | 67% | 33% | 0% | 0% | 100% |
| No contraception | 8 | 1 | 7 | 1 | 1 | 18 |
| | 44% | 6% | 39% | 6% | 6% | 100% |
| Total | 14 | 48 | 29 | 6 | 3 | 100 |
| | 14% | 48% | 29% | 6% | 3% | 100% |

$p = 0.001$

The highest numbers of Pap smear abnormalities were seen in women using the hormonal methods (pills) as a method for contraception in comparison with other method. Out of 47 cases using the pills 87% of them were having LSIL & HSIL. $P=0.001$ Tab (5)

Table 6 correlation of patient's complaint with Pap smear results.

| Patient complaint | Result of Pap smear | | | | | Total |
|--------------------------------------|---------------------|------|------|--------------|------------|-------|
| | Non-specific | LSIL | HSIL | Koilocytosis | ASCUS/AGUS | |
| Vaginal discharge | 13 | 24 | 9 | 1 | 2 | 49 |
| | 27% | 49% | 18% | 2% | 4% | 100% |
| Postcoital bleeding | 1 | 21 | 19 | 1 | 1 | 43 |
| | 2% | 49% | 44% | 2% | 2% | 100% |
| Mixed(postcoital bleeding and other) | 0 | 1 | 0 | 1 | 0 | 2 |
| | 0% | 50% | 0% | 50% | 0% | 100% |
| Abnormal vaginal bleeding | 0 | 2 | 1 | 3 | 0 | 6 |
| | 0% | 33% | 17% | 50% | 0% | 100% |
| Total | 14 | 48 | 29 | 6 | 3 | 100 |
| | 14% | 48% | 29% | 6% | 3% | 100% |

p = 0.001

The highest numbers of Pap smear abnormalities (LSIL, HSIL) were seen in women complaining from postcoital bleeding (49%, 44%).P =0.001 Tab (6)

IV. DISCUSSION

Baghdad is the capital of Iraq. Located along the Tigris River .The population of Baghdad, according to the government is 9 million [11].

Iraqi program proposal for early detection of cervical cancer has begun in 2012, in Baghdad, Basra, and Ninawa governorates [6]. Till now , program of screening for cervical cancer is not applied in Iraq due to many obstacles, including shortage of pathologists in Iraq and migration of others due to terrorism and lack of conviction among women in Iraq about this screening test due to lack of awareness and shortage of educational program on this subject. This is why we have low number of women attend clinic for evaluation. Pap test is done upon request of doctor to high risk group of women:

(those having one or more of the following: History of inter-menstrual or post coital bleeding, personal or husband history of sexually transmitted infections (STI), early marriage and pregnancy or married more than once, abnormal vaginal discharge, history or presence of genital warts, continuous use of oral contraceptive pills for 3 or more years .Testing can also be done to married women having no symptoms, but her cervix is abnormal looking on exam) [6] .

The current study shows that higher percentage of studied group have Pap smear abnormalities (86%), and this may be related to our selection criteria because most of women in the study were having signs and symptoms. This result is in agreement with a study carried out in Baghdad in 2014 [12].

The majority of the abnormal Pap smears in our study were in the SIL category (LSIL & HSIL), representing 77 % of total cases. Most of our cases were LSIL. However most CIN spontaneously regress, if left untreated.[13] Progression to

invasive cancer occurs in approximately 1% of CIN1, 5% in CIN2 and at least 12% in CIN3 [14].

In our study, Koilocytosis which is [squamous epithelial](#) cells that have undergone a number of structural changes, as a result of infection by [human papillomavirus](#) was found in 6% of cases. These cells are occasionally led to [cervical intraepithelial neoplasia](#), and if left untreated some may eventually progress to [malignant](#) cancer. So these need to be followed-up carefully [15].

Our study shows that only 3% of the cases were having ASCUS and AGUS collectively. Meta-analysis has shown that over a period of 2 years the rate of progression from ASCUS to invasive cancer was 0.25% and to HSIL was 7.13%, while the rate of regression is 68.19% [16]. This means that we have to follow up women with ASCUS result carefully until the regression of the lesion is achieved.

Atypical glandular cells are unusual but important cytological diagnosis. Because of the high likelihood that AGUS is associated with significant clinical diseases, such as: high-grade pre-invasive squamous disease, adenocarcinoma in situ, adenocarcinoma or invasive cancers from sites other than the cervix. Colposcopic examination is recommended for all women with a cytological diagnosis of AGUS [17]. This result is the same as the study which was done in Kirkuk. So any patient with AGUS needs further evaluation.

As there is no feedback of patients to same clinic and no good registration system in Iraq, most of patients were lost and we do not have accurate data system for carcinoma of cervix in Iraq that we can depend on.

Our study found that no difference in Pap smear abnormality in age group older or younger than 39 year age. This result was not the same as a study done in Kirkuk (2012) [6].were

they found that mean age of patients with LSIL, HSIL to be 37.7, 41.7 respectively.

The current study shows that high parity is associated with pap smear abnormalities and this is in agreement with a study done by EM Ikeanyi et al^[18].

In our study we found LSIL and HSIL on cytology to be more prevalent in patients when the age at marriage is between less than 20 year, and it's to some extent similar to a study done by Manjit et al^[19].

Also, significant correlations with, hormonal contraception, and this is in agreement with a study which suggests that long standing use of oral contraceptive pills might increase cervical cancer risk^[12, 20].

Our study emphasized the significance of postcoital bleeding & vaginal discharge and its association with premalignant changes in the cervix. Results came corresponding with other studies.^[21, 22]

V. CONCLUSION

Our study concludes that premalignant disease of the cervix is mostly seen in women when their age of marriage is less than 20 years and these abnormal changes are seen in those who have a complaint. A significant correlation with high parity, hormonal contraception, postcoital bleeding and vaginal discharge, with Pap smear abnormality were evident.

VI. RECOMMENDATIONS

1. Educational programs for women on the importance of cervical screening through different media sources.
2. Training programs for medical staff in primary health care centers and hospitals on Pap smear and colposcopy use.
3. Encouraging the Iraqi authorities to establish clinics for cervical screening and treatment of premalignant disease of cervix in all Iraqi provinces.

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