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Research Article

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Prevalence of Abnormal Cervical Smear at Yashfeen Gynaecological Clinic Tripoli, 2009-2012

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ABSTRACT

Cervical cancer is the third most common cancer in the world, with 2.3 million prevalent cases and 510.000 incident cases documented each year. Pap smear screening identifies abnormal premalignant cells at the cervical transformation zone; this resulted in reduction of cervical cancer incidence and mortality rates by 70% in developed countries. The study conducted to determine the incidence of abnormal Pap smears among gynaecological patients at Yashfeen clinic in Tripoli. A retrospective study included all Pap smears reported between 1st January 2009- 31st December 2012 for Libyan women, at Yashfeen Clinic in Tripoli. All cytological smears were collected by Ayre's spatula and slides were evaluated at Elzawia laboratories by consultant cytologist. A total of 507 cervical cytology specimens were reviewed and classified according to Bethesda system. A total of 507 Pap smear reports were reviewed from patients aged between (19-70) years. 493 (97%) were found satisfactory for analysis, and of these 130 (26%) were normal, while 344 (70%) had benign cellular changes in the form of inflammatory smears. There were 19 (4%) abnormal smears with epithelial cell abnormalities, of which 14 (3%) had atypical squamous cells of undetermined significance (ASCUS), and 5 (1%) had low grade squamous intraepithelial lesions (LSIL). There were no cases of atypical glandular cells of undetermined significance (AGUS) or high grade squamous intraepithelial lesions (HSIL) or squamous cell carcinoma (SCC) among this sample of smears. The prevalence of (LSIL) and (ASCUS) is low in this study. Overall, 4% of routinely screened women were found to have an abnormal cervical smear.

Key wards- *Pap smear; Screening; Cervical cancer; Neoplasia.*

INTRODUCTION

Cervical cancer is the fourth most frequent cancer in women with an estimation of 570,000 new cases in 2018 representing 6.6% of all female cancers. Approximately 90% of deaths from cervical cancer occurred in low- and middle-income countries.[1]

The major risk factors for cervical cancer are well documented including sexual habits (age of first sexual intercourse and the number of sexual partners), infection with human papilloma virus, low socio-economic status, marrying before age 18 years and cigarette smoking.[2]

The majority of the screening programs worldwide are using pap smear methods and attempting to imitate the excellent outcome achieved in developed countries, Finland is the best worldwide example for decreasing in cervical cancer incidence as a result of a well organised screening program.[3]

Pap smear screening identifies abnormal premalignant cells at the cervical transformation zone; this resulted in reduction of cervical cancer incidence and mortality rates by 70% in developed countries.[4]

Cervical screening helped to decrease cervical cancer rate, since Pap smear implementation from 1950s.[5] A dramatic reduction has been observed in the incidence and mortality of invasive cervical cancer worldwide as a result of introduction of the Pap smear. This is because of the ability of Pap smear to recognise early precancerous changes and the availability of effective treatments.[6]

The International Agency for Research on Cancer (IARC) determined that the incidence of invasive cervical cancer can be reduced by at least 80% with the implementation of cervical cancer screening programs based on Pap test every three to five years for women of ages 35 to 64.[7]

It suggested that five yearly screening of women aged 20 to 65 years could reduce the incidence of invasive cancer by 84%. Three-yearly screening could reduce the incidence by 91% and annual screening could reduce the incidence by 93%.[8] National Institute of Clinical Excellence (NICE) concluded that liquid based cytology (LBC) represented a cost-effective alternative to Papanicolaou smears, offering improved sensitivity without any reduction in specificity, and a reduction in the number of inadequate tests reported.[9]

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Screening with use of Pap smear, liquid based cytology and human papilloma virus with use of DNA testing have contributed significantly to the reduction of cervical cancer in developed countries, and more recently visual inspection with acetic acid (VIA),which is easy, costs effective and fits well to low resource countries.[10]

Effective programs must meet targets: at least 70% of the targeted population should be screened at least once in a lifetime; screening assays and diagnostic tests must be reproducible and sufficiently sensitive; and specificity for the detection of high-grade precursor lesions and effective treatment must be provided.[11]

For counselling young women and for organising a public health system it is important to know the incidence of cervical intraepithelial lesions in a country. Therefore, the aim of this study was to estimate the incidence and pattern of abnormal Pap smears based on Bethesda system among gynaecological patients at Yashfeen Clinic in Tripoli between 1st January 2009- 31st December 2012.

MATERIALS AND METHODS

A retrospective cohort study, aimed to evaluate all Pap smears reported between 1st January 2009- 31st December 2012 was conducted at Yashfeen private gynaecological Clinic, Tripoli, Libya.

All cytological smears were collected by Ayre's spatula and slides were evaluated at the cytology lab in Elzawia laboratories by consultant cytologist. A total of 507 cervical cytology specimens were reviewed and classified according to Bethesda system.

The following cytological diagnoses were used:

- Benign cellular changes: including infection and reactive changes and epithelial cell abnormalities including squamous and glandular cell changes.
- Atypical squamous cells of undetermined significance (ASCUS).
- Atypical glandular cells of undetermined significance (AGUS).
- High- and low-grade intraepithelial lesion (HSIL) and (LSIL).
- Squamous cell carcinoma (SCC).
- When there were no cellular changes: negative Pap smear result was reported.

Statistical analysis of collected data was performed using the SPSS IBM version 20. The results were expressed in frequencies, means, percentages, and tables.

RESULTS

A total of 507 Pap smear reports were reviewed from patients, all were Libyan, 96% were from Tripoli The age of the cases ranged from 19 to 70 years old with a mean age of 38.8 ± 8.7 years and most of the cases among age group 25-44 years; 13.4 % of patients were menopause. Contraceptive use and hormonal therapy reported among 7.3%, 1.2% of cases, respectively (Table 1).

Table 1: Demographic and reproductive data of 507 cases

Item	Number	Percentage
Age		
25>	22	4.3%
25-44	362	71.4%
45-70	123	24.3%
Parity		
P0-P1	108	21.3%
P2-P3	197	38.9%
P4≤	202	39.8%
Pregnancy		
Yes	6	1.2%
No	501	98.8%
Postnatal		
Yes	10	2%
No	497	89%
Contraceptive use		
Yes	37	7.3%
No	470	92.7
Menopause		
Yes	68	13.4%
No	439	86.6
Hormonal therapy		
Yes	6	1.2%
No	501	98.8%
Pelvic infection		
Yes	17	3.4%
No	490	96.6%
Hysterectomy		
Total	16	3.2%
Subtotal	4	0.8%
No	487	96%
Residence		
Tripoli	487	96%
Outside Tripoli	20	4%

Abnormal cervical cytology classified by the Bethesda

system, of the 507 Pap smears, 493 (97%) were found satisfactory (adequate smear); adequate smear was assessed according to the presence of endocervical cells. There were 130 (26%) of cases had normal smear, while 344 (70%) had benign cellular changes in the form of inflammatory smears. There were 19 (4%) abnormal smears with epithelial cell abnormalities, of which 14 (3%) had ASCUS, and 5 (1%) had low grade squamous intraepithelial lesions (LSIL). There were no cases of atypical glandular cells of undetermined significance (AGUS) or high grade squamous intraepithelial lesions (HSIL) or squamous cell carcinoma (SCC) among this sample of smears. The overall rate of abnormal Pap smears was (4%).

Table 2: Cytological diagnosis of 493 Pap smear.

Diagnosis	.No	Percentage
Negative	130	26%
Benign cellular changes	344	70%
ASCUS	14	3%
AGUS	0	0%
LSIL	5	1%
HSIL	0	0%
SCC	0	0%
Total	**493**	**100%**

Cytology was performed mostly for routine indications in 467 (92.1%) of cases, and for intermenstrual bleeding (IMB), postcoital bleeding (PCB) in 34 (6.7%) of cases and 6 (1.2%) of cases had postmenopausal bleeding (Table 3).

Table 3: Indications of cervical smear

Indication	Number	Percentage
Routine	467	92.1%
IMB and/or PCB	34	6.7%
PMB	6	1.2%
Total	**507**	**100%**

Table 4 showed that clinical appearance of cervix was normal in 448 (88.3%), and cervicitis was reported in 43 (8.5%) of smears (Table 4).

Table 4: Clinical appearance of the cervix

Cervix appearance	Number	Percentage
Normal	448	88.3%
Cervicitis	43	8.5%
Polyps	10	2%
Suspicious	6	1.2%
Total	**507**	**100%**

DISCUSSION

Literature is full with evidences supporting the importance of early detection of premalignant lesions of the cervix by cytological examination using Pap smear. Invasive cancer is preceded by a spectrum of heterogeneous epithelial lesions over a long period. Identification of relevant risk factors and prompt management of the precancerous lesions are important in the prevention of invasive cancer of the uterine cervix. In general, these premalignant lesions are reversible, although the more severe lesions the less the chance of spontaneous regression.[12]

In this study, Pap smear abnormality of 4% is comparable to that reported in other Middle East countries. The rate of abnormal cytology is reported to be 3% in Iranian women[13], 3.8% in Jordan[14], 4.3% in Kuwait.[15] It is also comparable to some European countries, such as Italy (2.4%)[16], and Belgium (3.7%).[17] However, the rate of cervical cytology abnormalities, in this study, is lower than many countries around the world, such as Russia (9.8%)[18], Romania (5.9%)[19]and India (6.3%).[20]

The main age of SIL positive women in our study was (40.5 years), which is higher than the western countries. Also, the result of a study in Saudi Arabia showed that, the average age of SIL was lower than our study.[21] The majority of the SIL diagnoses in our population were the ASCUS category, (Atypical squamous cells of undetermined significance) presenting 14 smears from 19 abnormal smears (73.6%) of SIL cases. Although patients with ASCUS diagnosis are at increased risk for the development of SIL, significance of this diagnosis remains, as its name suggest "Undetermined". Furthermore, ASCUS diagnosis represents the area of most intra-observer variability among cytologists. Low grade SILs are at substantially increased relative risk of developing high grade SIL and invasive cervical carcinoma compared to the SIL negative population.[22] Although most low grade SIL lesions regress completely, the absolute risk of patients with low grade SIL for developing high grade SIL within 2 to 4 years is 10%.[23] Furthermore, HSIL may arise in HPV infected patients without an intervening diagnosis of LSIL. The Bethesda system category of AGUS (Atypical glandular cells of undetermined significance) includes cells of adenocarcinoma in situ as well as cells suspicious for adenocarcinoma of the cervix, which now accounts for (10-20%) of primary cervical cancers.[24]

In our study, no abnormal Pap smears reported AGUS, this may be explained by that the glandular lesions are often located deep in the endocervical canal and therefore, more difficult to sample with conventional Pap smear tools. Additionally, in conventional Pap smear the cytological features of glandular lesions and carcinoma in situ (CIN) are subtle and often show overlap with the cytological features of CIN. In liquid based cytology, the sensitivity for glandular lesions is increased.[25]

This together with a better understanding of morphology and aetiology and therefore a higher awareness by pathologists of glandular lesions, could lead to improved recognition of glandular lesions. Additionally, in current

study no SCC (Squamous cell carcinoma) cases are found, this is probably due to small sample size from one private Clinic in eastern Tripoli and therefore community-based studies are required to establish the incidence of SCC.

Our results are comparable with others, that we have relatively lower prevalence of cervical carcinoma and cervical lesions, which is most probably due to sexual behaviours under Islamic rules. In Libya, according to Islamic rules, sexual activity typically begins only after marriage, where the main marital age is over 20 years, and the cultural and religious traditions of our conservative society limit the likelihood of multiple sexual partners. Furthermore, other practices such as male circumcision, which is well established in our country, may play an important role as well. Another probable explanation is that fewer women are screened due to their social and cultural background, and their lack of awareness of the importance of an annual Pap smear.

The limitation to present study should be acknowledged as all retrospective study procedures, such as selection bias. It must also be kept in mind that this hospital-based collection of data and there could be an inherent bias. For abetter estimation of the prevalence of cervical disease onlarger population-based surveys should be conducted. Visual inspection aided by application of acetic acid is an alternative to cytology screening, yet recent techniques such as HPV DNA testing can be used to identify cervical lesions without reliance on cytology.

The Pap smear limitations also include failure to acquire adequate specimens, inter-observer bias and misinterpretation. Inflammation, scant cellularity and blood contaminating samples have all been considered as causes for inadequate or unsatisfactory samples. On the other hand, HPV testing has a sensitivity of 96% and it decreased the number of colposcopies by 50%. Therefore, combining cytology with HR-HPV testing allows for extended screening intervals if both tests are negative, given its high negative predictive value.[26]

CONCLUSION

The prevalence of low-grade squamous intraepithelial lesions (LSIL) and atypical squamous cells of undetermined significance (ASCUS) is low in this study, when compared with studies from western world. Overall, 4% of routinely screened women were found to have an abnormal cervical smear.

RECOMMENDATIONS

1. Identifying and reaching out to unscreened and under-screened women is our ethical responsibility.

2. Overcoming healthcare barriers and making testing cheaper.

3. Well-designed information campaign should be implemented in national screening programme.

4. Support the preventive efforts through widespread HPV vaccination.

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