

Original article

Pap Smears Cytology of Cervical Abnormalities in Derna, Libya

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ABSTRACT

The study aimed to provide information about the prevalence of various cervical lesions diagnosed by Papanicolaou smear tests among women in the city of Derna, in eastern Libya. The reporting of the Pap smears is based on the 2014 Bethesda system. The study included seventy-two cervical Pap smears cytology received at the Noor-AL-Huda Medical Center Pathology Laboratory in Derna City, east of Libya, and processed using conventional smear techniques. The data was gathered retrospectively from March 2022 to August 2023. A total of 72 cervical Pap smears were included in the study. The majority of the cases reported were Negative for Intraepithelial Lesions or Malignancy (NILM) 54 (75%). Out of the 72 reports, 2 (2.7%) were unsatisfactory. Low-grade Squamous Intraepithelial Lesions (LSIL) were found in 8 cases (11.11%), and 4 (5.5%) were High-grade Intraepithelial Lesions (HSIL). Atypical Squamous Cells cannot exclude HSIL (ASC-H) were found in 4 cases (5.5%). LSIL and HSIL were more common among women aged 30-40 years. The age of the patients included in this study ranged from 30 to 56, with a mean age of 40 years. These findings emphasize the importance of a well-organized cervical screening program. In particular, women over 30 years should be educated about the importance of Pap smears and encouraged to undergo regular screening.

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INTRODUCTION

In Libya, there are 2.40 million women aged 15 and older who are susceptible to cervical cancer. Annually, 240 women are diagnosed with the disease, resulting in 141 deaths. Cervical cancer ranks as the third most common cancer among Libyan women overall and the seventh most prevalent among those aged 15 to 44. In 2020, the age-standardized cervical cancer incidence per 100,000 women was 7.7 [1]. Cervical cancer ranks as the fourth most commonly diagnosed cancer among women worldwide. The primary cause of cervical cancer is infection with HPV. In the United States, the incidence of cervical cancer has significantly decreased by 70% since 1955, largely attributed to preventive measures. These include primary prevention through vaccination against cancer-causing strains of HPV and secondary prevention through screening methods such as Pap smears and HPV tests. Pap smears involve the microscopic examination of cervical cells collected during the test, enabling the detection of abnormal cells that may indicate HPV-induced cancer [2-4].

The National Health Service (NHS) initiated a screening program using Pap smears, which has proven effective. It is recommended for women aged 25-49 years every 3 years and for those aged 50-64 years every 5 years. In Australia, there has been a reported 90% reduction in cervical cancer diagnoses attributed to the success of this screening program

and preventive measures. As a result, it is anticipated that the recovery rate will reach 98% by 2028 [5]. Research suggests that a well-implemented cervical cancer screening program not only identifies early-stage abnormalities but also reduces mortality rates [6]. Despite efforts dating back to the 1960s to establish national cervical cancer screening programs, Libya presently relies on opportunistic rather than systematic screening.

Cervical cancer remains a significant global health challenge despite the development of HPV vaccines aimed at prevention [7]. High-risk types of human papillomavirus (HPV) play a critical role in the progression of cervical dysplasia and cancer, responsible for the majority of cases [8]. Treatment for locally advanced cervical cancer typically involves multimodal therapy, combining daily external beam radiation, brachytherapy, and weekly chemotherapy [9]. The effectiveness of chemoradiotherapy (CRT) in inducing tumor regression varies widely and significantly impacts patient survival [10,11]. Currently, there are no established predictive markers for assessing sensitivity or resistance to radiation therapy. The study aimed to provide information about the prevalence of various cervical lesions diagnosed by Papanicolaou smear tests among women in the city of Derna, in eastern Libya.

METHODS

This retrospective study spans the period from March 2022 to August 2023. Ethical approval was obtained from the research committee at the Faculty of Medicine, University of Derna. Samples collected for Pap smears were registered at the Noor-AL-Huda Medical Center Pathology Laboratory in Derna City.

Clinical information from patients and their consent to use the results in research were obtained through the request form. The conventional smear samples were centrifuged for a few minutes, fixed immediately in 95% ethyl alcohol, and then stained with Hematoxylin & Eosin. The cytological interpretation of the smears was made according to the 2014 Bethesda system. The data was statistically analysed using percentage method to identify the prevalence of each group.

RESULTS

Out of seventy-two Pap smears analysed, the patients' ages ranged from 30 to 56, with a mean age of 40 years. As shown in Table 1, half of the patients (50%) were in the 30-40 age group. Two-thirds of the cases (48 cases, 66.66%) presented with a history of prolonged vaginal bleeding and post-coital bleeding, while 14 cases (19.44%) reported experiencing lower back pain. Data were unavailable for 10 cases (13.88%).

Table 1. Distribution of the studied cases according to age

Age of patients -years	Number of patients	Percentage (%)
30-40	36	50%
41-50	32	44.44%
51-60	4	5.55%
Total	72	100

Approximately 54 (75%) of Pap smear reports were negative for intraepithelial lesion or malignancy (NILM), while 16 (22.22%) showed abnormal cytological findings. 8 (11.11%) had low-grade squamous intraepithelial lesion (LGIL), 4 (5.5%) had high-grade squamous intraepithelial lesion (HGIL), and 4 (5.5%) were classified as ASC-H. LGIL and HGIL were more common in the age between 30-40 years. Two smears (2.77%) were unsatisfactory for evaluation due to cells being masked by neutrophils, as shown in Table 2.

Table 2. Distribution of cytological finding of pap smear reports according to 2014 Bethesda System

Result of pap smear	Number of cases	Percentage
Unsatisfactory for evaluation	2	2.77
Negative for intraepithelial lesion or malignancy (NILM)	54	75
Low grade Squamous intraepithelial lesion (LGIL)	8	11.11
High grade Squamous intraepithelial lesion (HGIL)	4	5.5
ASC-H	4	5.5
Total	72	100

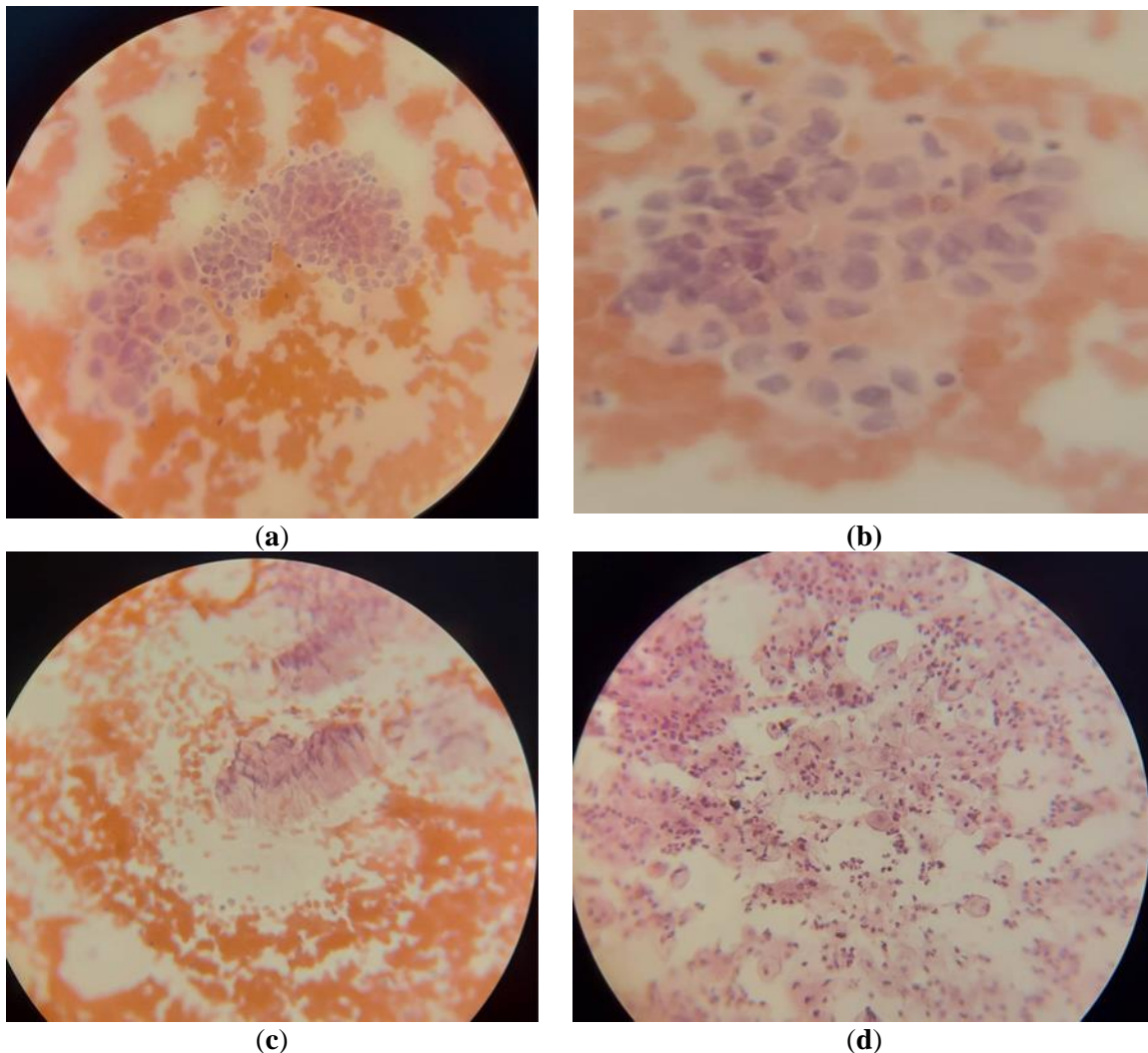


Figure 1. Hematoxylin & Eosin staining of studied case; (a) Aggregates of endocervical cells with no atypia X400, (b) Inflammatory smear. NILM x400, (c & d); Both c.x200 & d.x400 reveals epithelial cell abnormality, squamous cell Atypical squamous cells - cannot exclude a high-grade squamous intraepithelial lesion (ASC-H)

DISCUSSION

Various factors have been identified as risk factors for cervical cancer. According to the WHO, the risk increases in women who are HIV-positive, have had multiple sexual partners, engage in sexual activity with partners who have had multiple partners, or participate in high-risk sexual behaviors. Other significant risk factors include not being vaccinated against HPV, having co-infections with other sexually transmitted diseases, smoking, long-term use of oral contraceptives, and not undergoing screening for precancerous lesions [12]. According to the International Agency for Research on Cancer (IARC), implementing cervical cancer screening programs using Pap tests every three to five years for women aged 35 to 64 can decrease the incidence of invasive cervical cancer by at least 80%. They also suggest that screening women aged 20 to 65 every five years could reduce cancer incidence by 84%, every three years by 91%, and annually by 93% [13].

In another study, women from Russian, Somali, and Kurdish backgrounds were compared with the general Finnish population in terms of cervical cancer screening. The study found that Russian women had slightly lower odds (0.92) of participating in screening, Somali women had significantly lower odds (0.16), and Kurdish women had slightly higher odds (1.37). The study also noted lower participation among students and retirees. The author proposed that strategies tailored to each cultural group and specific population could enhance screening rates [14].

In this study, 75% of the cases showed Negative for Intraepithelial Lesion or Malignancy (NILM). Similarly, research conducted in Nigeria revealed that 10.8% of respondents had precancerous lesions, indicating a high prevalence of cervicitis (95%) and a relatively high occurrence of leukoplakia (5.4%) among women [15]. The study's result shows that the low grade squamous intraepithelial lesion (LGIL) was found in 11.11% of cases. In contrast, Mukhtar et al [16]

reported a lower prevalence of low-grade squamous intraepithelial lesions at 0.3%, which is lower than our findings. Similarly, they observed a lower prevalence of ASC-H, at 0.5% compared to the 5.5% found in our study. Likewise, in Tripoli, 4% of routinely screened women were found to have an abnormal cervical smear [17].

A study conducted in northeast Libya from 2000 to 2008 revealed that among 4,090 female cancer cases during this period, cervical cancer accounted for 1.8% of cases. The average age at diagnosis was 53 years. Human papillomavirus (HPV) was strongly associated with cervical cancer, with 94% of tested cases positive for HPV-16 (82.5%) and HPV-18 (12.7%) [18]. HPV infection is highly prevalent globally as a sexually transmitted disease and is the primary cause of cervical cancer. Nearly 90% of cervical intraepithelial neoplasia (CIN) cases and more than 99% of cervical cancer cases are linked to high-risk HPV infections. Specifically, HPV types 16 and 18 account for approximately 70% of cervical cancer cases worldwide [19].

Libya has been compared to both developed nations and neighboring regions regarding cervical cancer, revealing a significant challenge in delayed case presentation [18]. It is recommended to stress the importance of enhancing public awareness, instituting a national cancer control plan, and establishing a comprehensive, well-organized screening program that offers Pap tests in all gynecology clinics. The awareness should include education about risk factors and address barriers such as feelings of shyness and fears related to test outcomes.

CONCLUSION

Cervical screening by Pap smear test is a useful, non-invasive, and cost-effective method for the early detection of pre-invasive lesions of the cervix. Although this study lacks data linking the prevalence of cervical lesions in our city with the poor knowledge of women about Pap smears, access to facilities for the practice was also very limited. However, education campaigns could significantly improve knowledge about this test among women. We hope that the responsible authorities provide this type of test in the general hospital, as it does not require enormous capabilities. Further studies involving a larger number of cases are needed. Ongoing collaboration between basic scientists and clinical researchers is highly recommended.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare

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فحص الخلايا بواسطة اختبار PAP للكشف عن التشوهات العنقية في درنة - ليبيا

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المستخلص

هدف هذه الدراسة تقديم معلومات حول مدى انتشار آفات عنق الرحم المختلفة التي يتم تشخيصها عن طريق اختبارات مسحة عنق الرحم بين النساء في مدينة درنة شرق ليبيا. يعتمد تقرير فحص مسحات عنق الرحم على نظام Bethesda لعام 2014. شملت الدراسة اثنين وسبعين عينة من مسحة عنق الرحم التي تم استلامها في مختبر علم الأمراض بمركز نور الهدى الطبي في مدينة درنة، شرق ليبيا، وتم معالجتها باستخدام تقنيات المسحة التقليدية. وتم جمع البيانات بأثر رجعي من مارس 2022 إلى أغسطس 2023. تم تضمين ما مجموعه 72 مسحة عنق الرحم في الدراسة. كانت غالبية الحالات التي تم فحصها سلبية للآفات داخل الظهارة أو الأورام الخبيثة (75% (NILM) 54). من أصل 72 مسحة، كان عدد عينيتين (2.7%) غير مطابقة للمواصفات. تم العثور على آفات حرشفية منخفضة الدرجة داخل الظهارة (LSIL) في 8 حالات (11.11%)، وكانت 4 (5.5%) آفات داخل الظهارة عالية الجودة (HSIL). لا يمكن للخلايا الحرشفية غير النمطية استبعاد وجود (ASC-H) (HSIL) في 4 حالات (5.5%). كان LSIL و HSIL أكثر شيوعًا بين النساء الذين تتراوح أعمارهم بين 30-40 عامًا. تراوحت أعمار المرضى المشمولين في هذه الدراسة من 30 إلى 56 عامًا، بمتوسط عمر 40 عامًا. تؤكد هذه النتائج على أهمية وجود برنامج جيد التنظيم لفحص عنق الرحم. وعلى وجه الخصوص، ينبغي تثقيف النساء فوق سن 30 عامًا حول أهمية مسحة عنق الرحم وتشجيعهن على الخضوع لفحص منتظم.

الكلمات الدالة: تشوهات عنق الرحم، مسحة عنق الرحم، الآفات داخل الظهارة.