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Original Research

Distribution of cervical epithelial lesions in a conventional Pap smear

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Abstract

Aim: In this study, we aimed to examine the distribution of cervical epithelial lesions in conventional pap smear screening.

Material and Methods: The smear results of 4500 patients aged 25-65 years who applied to the Istanbul training and research hospital between 2010 and 2011 for conventional smears were analyzed retrospectively. The smear results of the patients were recorded from their files. Smears taken from all patients using plastic brushes were evaluated according to the Bethesda system. The smears were classified by an experienced pathologist according to the following epithelial abnormalities: ASCUS: Atypical squamous cells of undetermined significance, AGUS: atypical glandular cells of undetermined significance, LGSIL: Low grade squamous intraepithelial lesion, HGSIL=High grade squamous intraepithelial lesion, Squamous cell carcinoma and other rare abnormalities. After the smear was stained with the Papanicolaou method, it was evaluated under light microscopy. ASCUS, AGUS, LGSIL and HGSIL are epithelial anomalies in cervical cells and are diagnosed using light microscopy.

Results: The normal smear rate was found to be 14%. The most common epithelial anomaly was recorded as chronic cervicitis with a rate of 60%. While the rate of smears containing atrophic cells was 9%, the rate of smears containing insufficient cells was 8%. A smear containing squamous cells was detected in 5.2% of the cases. Atypical squamous cells of undetermined significance were detected in 2% of cases, while atypical glandular cells of undetermined significance were found in 0.2%. While low-grade squamous intraepithelial lesion was 0.8%, high grade squamous intraepithelial lesion was found to be 0.3%. Cervical cancer was not detected in 4500 cases. Considering the number of patients who underwent smear screening, it can be considered normal not to detect cervical cancer.

Discussion: A large proportion of cervical epithelial lesions can be accurately detected with conventional pap smear screening.

Keywords

Pap Smear, Cervix, Epithelial Lesion, Screening

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Introduction

Cervical cancer is the fourth most common cause of cancer death in women. Thanks to screening programs, the incidence of cervical cancer has decreased significantly. Conventional Pap smear is the classical method used for cervical cancer screening. The limitations of conventional methods are minimized by liquid-based cytology [1]. Cervico-uterine cancer screening with conventional or liquid-based cytology reduces the incidence of cervical cancer by nearly 50% [2]. Unsatisfactory smears results are higher in conventional pap smears than in liquid-based cytology. However, performing a smear with any method yields significantly better results than no smear at all.

In addition to screening for epithelial abnormalities, the risk of cancer is further reduced if HPV DNA screening is also performed. However, while HPV DNA testing is done in developed countries, it is rarely performed in developing countries. The Pap smear test is an inexpensive, easily applicable and reproducible screening test. It can detect cervical anomalies with high sensitivity and specificity. In doubtful cases, it can be confirmed by repeating the test. It is of critical importance to interpret Pap smear results well and to diagnose and treat accordingly [3]. This study includes the retrospective analysis of 4500 cases of cervical cancer screening with a conventional pap smear. The distribution of cervical epithelial abnormalities obtained according to the smear results was detailed.

Material and Methods

Before the study, permission was obtained from the ethics committee of Istanbul Training and Research Hospital and the patients were informed about the study (2/17-2010). The smear results were obtained from the protocol numbers of the patients who did not have smear results in the file.

The smear results of 4500 patients aged 25-65 years who applied to the Istanbul Training and Research Hospital between 2010 and 2011 for conventional smears were analyzed retrospectively. The smear results of the patients were recorded from their files. Smears taken from all patients using plastic brushes were evaluated according to the Bethesda system. The smears were classified by an experienced pathologist according to the following epithelial abnormalities:

ASCUS: Atypical squamous cells of undetermined significance,
AGUS: atypical glandular cells of undetermined significance,
LGSIL: Low-grade squamous intraepithelial lesion,
HGSIL=High-grade squamous intraepithelial lesion,
Squamous cell carcinoma and other rare abnormalities.

Results

The ages of the patients ranged from 25 to 65. All cases were married couples. While some patients had a smear for the first time, most of the cases consisted of people who had previously had a smear scan. Patients who wanted to have liquid-based cytology were not included in the study. Routine HPV DNA screening was not performed during the initial smear screening. In cases with abnormal epithelial proliferation, smear, tissue sampling and HPV screening were also performed with colposcopy.

The distribution of conventional pap smear results according to the Bethesda system is shown in Table 1. The normal smear rate was found to be 14%. The most common epithelial anomaly was recorded as chronic cervicitis with a rate of 60%. While the rate of smears containing atrophic cells was 9%, the rate of smears containing insufficient cells was 8%. A smear containing squamous cells was detected in 5.2% of the cases. ASCUS was detected in 2% of cases, while AGUS was found in 0.2%. While LGSIL was 0.8%, HGSIL was found to be 0.3%. Cervical cancer was not detected in 4500 cases. Considering the number of patients who underwent smear screening, it can be considered normal not to detect cervical cancer.

Table 1. Distribution of conventional Pap smear results

Epitheliail abnormalities	%
Normal smear	14
Chronic cervicitis	60
Atrophic cells	9
Squamous cells	5.2
Insufficient cells	8
ASCUS	2
AGUS	0.2
LGSIL	0.8
HGSIL	0.3

ASCUS: Atypical squamous cells of undetermined significance, AGUS: atypical glandular cells of undetermined significance, LGSIL: Low-grade squamous intraepithelial lesion, HGSIL=High-grade squamous intraepithelial lesion,

Discussion

The Pap smear is a screening test widely used all over the world to screen for cervical cancer. Although it is easily applicable and inexpensive, its sensitivity is low (approximately 55%). With the help of additional immunohistochemical tests such as Ki-67 and p16, the sensitivity of the pap test can be increased to 90%. By adding HPV DNA, sensitivity rates can be increased even more [4]. Due to low sensitivity, tissue sampling should be performed in the presence of a macroscopically pathological cervix, even if the Pap smear results are normal [5].

Although early diagnosis of cervical precancerous lesions is important, screening programs do not always give accurate results. Suspicious diagnostic cervical lesions occur with different frequencies depending on the technique of taking the smear or the experience of the cytologist who interprets the smear. Vaccination against HPV is a more effective method than Pap smear screening. However, since it is an expensive method, it must be financed by governments [6].

The protective effect of the Pap test against cervical cancer varies with age. With advancing age, both the inadequate cytology rate and the risk of epithelial anomalies increase. The sensitivity of screening tests performed in women under the age of 40 is higher than in older ages. For these reasons, it is critical to perform pap smear screenings before the age of 40 [7]. The incidence of cervical cancer is higher in HGSIL cases compared to LGSIL and ASCUS cases. However, a lower grade cervical epithelial lesion or inflammatory change can be detected in the majority of HSIL cases. However, we would like to point out that a smear result will always be considered a low-sensitivity test, unless evaluated by an expert cytologist. The fact that people living in different geographies and cultures have different epithelial anomaly incidence rates is also a feature that should

be taken into account during the interpretation of smear results [8].

Conclusions

Cervical cancer, which is the second most common malignancy in women, is a type of cancer that can be diagnosed in more than 50% by a Pap smear screening. Cervical cancer-related deaths can be significantly reduced if regular pap smear screening becomes routinely available with the joint effort of healthcare organizations and governments. However, women should be willing and conscious to have this test done. The dissemination of Pap test screening, especially in women under 40 years of age, allows for early diagnosis of epithelial abnormalities with higher sensitivity and specificity. In suspicious pap test results, if necessary, repeat testing or colposcopy according to a cervical image and biopsy can be performed [9]. By making HPV DNA test a part of pap smear screening, it will be possible to reach clearer and more precise results [10]. Efforts should be made to inform patients about pap smear and for the routine use of this test. Vaccination of patients in the risk group against HPV is considered a more effective approach. As a result, ensuring the effective use of the pap test is the most important preventive strategy we have in order to prevent fatal cervical cancers.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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