Original Article

Cervico-vaginal smear results for cervical cancer screening in a secondary medical center

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Objective
To assess the efficacy, cytopathologic diagnostic criteria, and clinical importance of our smear results.
Methods
The conventional smear reports of 7167 patients whose smear specimens were assessed at the Pathology Department of Zonguldak Maternity and Children's Hospital in Turkey from June 2006 to June 2010 were analyzed retrospectively. All of the samples were evaluated with Bethesda III 2001 system.
Results
The smear results were determined to be satisfactory in 4509 (63.0%) patients. Atypical squamous cell of undetermined significance (ASC-US), atypical glandular cell of undetermined significance (AGC-US), high grade squamous intra-epithelial lesion (HSIL), and low grade squamous intra-epithelial lesion (LSIL) were detected in 98 (1.4%), 25 (0.3%), 12 (0.2%) and 11 (0.2) patients, respectively. The most reported cause of inflamation was bacterial vaginosis and its incidence was 22.9%.
Conclusions
The unsatisfactory result rate was 6.7 % and total intra-epithelial cell abnormality rate was 2.1% in our study. Even though our unsatisfactory result rate was found to be relatively high in our study, we believe this percentage can be decreased by improving the smear technique, taking care of the transportation of the specimen, and adding adequate clinical information of the patients. (Rawal Med J 2012;37:285-287).
Keywords
Cervico-vaginal smear, Bethesda III 2001, intra-epithelial lesion.

INTRODUCTİON

Cervical cancer is the second most common cancer in women and the third most frequent cause of cancer death in all over the world.[1] Although the incidence of cervical cancer in Turkey is less than most European countries it is still the most frequent gynecologic cancer with incidence of 4.76/100.000.[2] It is potentially preventable entity because the pre-cancerous lesions can be detected by Papanicoleau smear (Pap smear). The Pap test is useful to reduce the incidence of cervix cancer as a screening test in developing countries.[3] The cancer incidence will decrease if screening is applied according to established recommendations. [4-6] Bethesda System 2001 represents a standardized system for reporting cytological results, with advantages that it facilitates pathologist-gynecologist communication, cyto-histological correlations, provides information for research in cervical pathology and generates data for statistics.[7] The aim of this study was to determine the clinical features, the adequacy of smears and the features of cytomorphological diagnosis at our institution.

MATERİAL AND METHODS

This study was performed with using the cervico-vaginal smear data of the Pathology Department of Zonguldak Maternity and Children's Hospital from June 2006 to June 2010. The patient age, clinical features, the adequacy of smears and the features of cytomorphological diagnosis werenoted. The specimens were fixed by a rapid spray fixative for

cytological smears (Bio-Fix®, BioOptica, Italy) and were stained by routine Pap stain. The adequacy of smears were assessed according to the Bethesda 2001 criteria. Pauci-cellularity, thick layer of cervico-vaginal secretions and cell layers, predominance of inflammatory elements or red blood cells were accepted as 'unsatisfactory for evaluation.'The smears containing at least five cells in a conglomerate and at least 2 endocervical cell stack or cells with squamous metaplasia were accepted as satisfactory.

Student's t-test, one-way analysis of variance (ANOVA), and SPSS v 14 were used for statistical analysis.

RESULTS

Mean age of the patients was 40.62±10.94 year (range 14-84). Sixty three percent, 30.3%, and 6.7% of the materials were found to be satisfactory, limited satisfactory and unsatisfactory, respectively. Among 2176 patients, diagnosed as limited satisfactory, bleeding and inflamation were reported in 1343 women (61.7%), lack of transformation zone was detected in 833 ones (38.3%) (Table 1).

Table 1. Distribution of Pap smears according to the diagnostic adequacy.

Diagnostic adequacy	Number	Percentage
Satisfactory	4509	63.0
Limited satisfactory	2176	30.3
Bleeding and inflamation	1343	18.7
Lack of TZ	833	11.6
Unsatisfactory	482	6.7
Inadequate fixation	298	4.2
Less than 10% squam cell	184	2.5
Total	7167	100

TZ means transformation zone, squam means squamous.

Inadequate fixation (61.8%) and less than 10% squamous cell in the field (38.2%) were the causes of the unsatisfactory diagnoses. Cervico-vaginal smears were diagnosed as normal (52.3%), reactive changes due to inflamation and infection (30.6%), atrophy (15.0%), and epithelial cell abnormality (2.1%).

Table 2. Distribution of the Pap smears according to the diagnosis.

Diagnosis	Number	Percentage
Normal ranges	3756	52.3
Reactive changes due to inflamation and infection	2191	30.6
Bacterial vaginosis	1638	22.9
Candida	485	6.8
Trichomonas	46	0.6
IUD usage	20	0.3
Actinomyces	2	0.0
Atrophy	1074	15.0
Epithelial cell anomaly	146	2.1
ASC-US	98	1.4
AGC-US	25	0.3
HSIL	12	0.2
LSIL	11	0.2
Total	**7167**	**100**

IUD means intra uterine device, ASC-US means atypical scuamous cell of undetermined significance, AGC-US means atypical glandular cell of undetermined significance, HSIL means high grade squamous intra-epithelial lesion, LSIL means low grade squamous intra-epithelial lesion.

Among 2191 women diagnosed with reactive changes due to inflamation and infection the most common causes were bacterial vaginosis (74.7%), Candida (22.1%), Trichomonas (2.1%), intra uterine device (IUD) changes (1.1%). ASC-US and AGC-US were seen 98 (1.4%), and 25 (0.3%) of the women, respectively (Table 2). The mean age for ASC-US and AGC-US were 38.38 ± 10.87, and 41.40 ± 11.25, respectively.

DISCUSSİON

For reducing the incidence of cervical cancer the Pap test has been successful as 79% since 1950.[8] The sensitivity of the Pap test is around 80%. It is recommended that annual Pap tests for three years should be performed. The sensitivity of three negative tests is 99.2%. Ideally, scanning starts at the age of 21or three years later after the sexual relationship begins. Conventional Pap test or liquid base cytology is applied. Conventional Pap test is performed once a year until the age of 30, after then, it is performed once in 2 or 3 years in those who have at least 3 negative tests.[9,10]

In our study, ages of the patients range (14-84) was wide and the rate of the limited satisfactory smears was 30.3%. The same parameters were reported

between 36.06%-48.3% in previous studies.[11,12] The most frequent cause of the limited satisfactory results was bleeding and inflammation (61.7%). The same value was reported lower (26.6%) in another study, where the most common cause was found to be the lack of endocervical cell (41.5%).[13] Koss reported that the most common cause of the inadequacy was the lack of epithelial cell number.[14] The most frequent cause of the unsatisfactory results was found to be inadequate fixation as being 61.8% in our study. The second common cause was less than 10% squamous cell in the field (38.2%).

Bacterial vaginosis occurs as a result of transformation of the normal aerobic vaginal flora to the anaerobic flora. Hillier compared the efficacy of Gram stain and cervico-vaginal smear for the diagnosis of bacterial vaginosis and suggested that the sensitivity and specifity of the smears were sufficient.[15] Tokyol et al reported that the causes of the reactive changes due to inflammation as being 55.29%, atrophy 6.73%, bacterial vaginosis 5.77%, Candida 0.96%, and Trichomonas 0.48%.[11] In our study, the incidence of reactive changes due to inflammation was found to be 30.6%, and among the inflammatory factors, the bacterial vaginosis was the most common one as being 22.9%.

The incidence of ASC-US was between 1% and 9% in the previous cervico-vaginal smears assessed according to the Bethesda 2001.[10,11] Epithelial cell anomalies were detected as 2.1% in our study and among of these were ASC-US 1.4%, AGC-US 0.3%, HSIL 0.2%, and LSIL 0.2%. Our results were similar with the study of Kir et al.[16]

CONCLUSİON

Further decreases in the cervical cancer incidence could be achieved if the smear techniques are improved and scanning of the transformation zone is essential for adequacy of the sample. The most common cause of the limited satisfactory diagnosis was bleeding and inflammation. Removal of the vaginal discharge by a gauze pad could be efficient to increase the quality of the smear.

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