CERVICAL DISEASE SCREENING: CYTOLOGICAL STUDIES OF WOMEN BASED ON DATA FROM THE FAMILY PLANNING AND REPRODUCTION CENTER "Dr. Nigin" IN BUKHARA REGION FOR 2022

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Summary. *Cytological analysis of cervical (cervical) smears is a microscopic examination of cells obtained from the surface of the cervix. The purpose of most clinical laboratory tests is to assist in making a diagnosis and monitoring the progress of a disease or the effectiveness of therapy. However, the purpose of the analysis to which this article is devoted is the prevention of the disease. We studied 402 cases in the laboratory of the family planning and reproduction center "Dr. Nigin" in Bukhara region during 2022 and 12 cases of ASCUS were detected. Most pathological smears contained cells with nuclear membrane alteration or inflammatory changes. Such patients needed targeted treatment, and rather more active monitoring. They were advised to undergo follow-up examinations after 6 months until the atypia had resolved.*

Key words: *cytology, PAP test, screening, cervix, cancer*

Резюме. *Цитологический анализ шеечных (цервикальных) мазков представляет собой микроскопическое исследование клеток, полученных с поверхности шейки матки. Цель большинства клинических лабораторных анализов – помощь в постановке диагноза и наблюдении за развитием болезни или эффективностью терапии. Однако целью анализа, которому посвящена эта статья, является предупреждение заболевания. Нами было исследовано 402 случаев в лаборатории центре планирования семьи и репродукции «Dr. Nigin» Бухарской области в течение 2022 года и выявлено 12 случаев ASCUS.*

Большинство патологических мазков содержали клетки с изменением ядерной мембраны или воспалительными изменениями. Такие пациентки нуждались в целенаправленном лечении, и скорее в более активном наблюдении. Им, посоветовали проходит повторные обследования через 6 мес., пока атипия не разрешился.

Ключевые слова: *цитология, ПАП-тест, скрининг, шейка матки, рак*

Annotatsiya. *Servikal (bachadon bo'yni) surtmalarining sitologik tahlili bachadon bo'yni yuzasidan olingan hujayralarni mikroskopik tekshirish hisoblanadi. Ko'pgina klinik laboratoriya testlarining maqsadi tashxis qo'yish va kasallikning rivojlanishini yoki terapiya samaradorligini kuzatishda yordam berishdir. Biroq, ushbu tahlil maqolaning maqsadi kasallikning oldini olishga bag'ishlangan. Biz Oilani rejalashtirish va reproduktsiya markazi "Dr. Nigin" laboratoriyasida 402 ta holatni o'rgandik. Buxoro viloyatida 2022 yil davomida 12 ta ASCUS holati aniqlangan. Ko'pgina patologik surtmalarda yadro membranasi o'zgarishi yoki yallig'lanish o'zgarishlari bo'lgan hujayralar mavjud. Bunday bemorlarga maqsadli davolanish va faolroq monitoring kerak edi. Ularga 6 oydan so'ng atipiya bartaraf etilgunga qadar keyingi tekshiruvdan o'tish tavsiya qilindi.*

Kalit so'zlar: *sitologiya, PAP test, skrining, bachadon bo'yni, saraton*

Background: Cervical cancer is one of the most common causes of death from malignant neoplasms among women. Cervical cancer and endometrial cancer differ in origin, pathogenesis, spread, and diagnostic methods. Currently, the incidence of cervical cancer is declining in all economically developed countries. The primary focus of the disease control program is its active detection during screening of apparently healthy women, as well as timely diagnosis and appropriate treatment of underlying and precancerous cervical conditions.

Purpose of the Study. The purpose of this study was to investigate the cytological features of cervical pathology. Cytological analysis of cervical pathology

was conducted based on official laboratory records at the Dr. Nigin Family Planning and Reproduction Center in the Bukhara Region for 2022.

Cervical Structural Features. Understanding the structural features of the cervix is essential for understanding many aspects of cervical pathology, including the development and progression of cancer. The cervix is cylindrical in shape. It may taper slightly toward the external os, giving it a cylindroconical shape.

In girls and adult women with underdeveloped genitals, the cervix is typically conical in shape. The vaginal portion of the cervix is covered by stratified squamous epithelium (ectocervix), while the cervical canal is lined by columnar epithelium (endocervix).

Their junction is usually located in the area of the external os of the uterus, although it can migrate outward or inward depending on conditions (hormonal factors, cervical trauma, inflammatory processes, cervical procedures). The location of the junction between the stratified squamous and columnar epithelium is of great interest to gynecologic oncologists. This is because precancerous changes, and subsequently cervical cancer, typically occur at the junction of the stratified squamous and columnar epithelium.

Atypical squamous cells of undetermined significance (ASCUS)

In cases where cellular changes more pronounced than reactive changes are observed in the smear, but quantitatively or qualitatively insufficient to establish a diagnosis of low-grade squamous intraepithelial lesion (LSIL), an ASCUS diagnosis is issued.

Materials and Methods. To evaluate this method of morphological analysis based on the evaluation of cellular material for the presence of atypical cells. For this purpose, we used two staining methods: Romanovsky-Giemsa and Papanicolaou staining.

Romanovsky-Giemsa staining. A cytological method for staining microorganisms, cellular structures, and various tissues (including blood) for examination by light microscopy. It was proposed in 1904 by Gustav Giemsa (Giemsa solution for Romanovsky staining). Romanovsky-Giemsa stain consists of

a mixture of azure, eosin, and methylene blue. Immediately before use, 10 drops of commercial Romanovsky-Giemsa stain are added to 10 ml of neutral or slightly alkaline distilled water (pH 7.0–7.2). The prepared dye solution is immediately poured onto a fixed smear or, better yet, a glass slide with the preparation to be stained is immersed in a cup of dye. After 1 hour, the dye is poured off, the preparation is washed with water, and air-dried.

Stain preparation: Before staining smears, the prepared liquid stain is diluted at a rate of 1-2 drops per 1 ml of distilled water. The smears are stained for 20-25 minutes at 37°C in a humid chamber (a closed Petri dish with a moistened filter at the bottom). After staining, the smears are rinsed under running water, air-dried, and examined using oil immersion.

Special standard Giemsa solution (stain composition):

Azure 1 — 3.772 g

Eosin — 2.165 g

Methylene blue — 1.563 g

Methanol (analytical grade) — 750.0 ml

Glycerol (analytical grade) — 256.0 ml

Pre-mixed Romanovsky-Giemsa stain is currently used. A working solution is prepared before use at a rate of 1 drop of stain per 1 ml of distilled water.

The dried, fixed smear is placed in a cuvette with the working solution for 25–40 minutes (the specific time is determined experimentally for each batch of stain). Bacteria are stained violet-red, the cell cytoplasm is blue, and the nuclei are red. When staining protozoa, their cytoplasm turns blue, and the nuclei are red-violet. Blood smear staining results:

Cell nuclei are red-violet.

Eosinophil granules are reddish-brown.

Basophil granules are blue.

Neutrophil granules are purple.

Lymphocyte cytoplasm is blue.

Erythrocytes are pale red.

Platelets: the outer part is blue (lighter); the inner part is purple (darker).

A statistical analysis of 402 referrals was used, including 250 patients referred from the gynecology and pathology departments of the Dr. Nigin Family Planning and Reproduction Center in the Bukhara Region in 2022.

Cytological examination of the specimens was performed using a trinocular microscope with an Android tablet and lenses of 4, 10, 40, and 100.

2. Papanicolaou staining technique (manual method).

1) In the first step, the slides are passed through alcohols of descending concentration to rehydrate the cytological material:

- 95% alcohol – 30 sec
- 70% alcohol – 30 sec
- 50% alcohol – 30 sec
- distilled water – 30 sec

2) After this, the slides are stained with hematoxylin for 10 minutes.

3) Rinse the slides with tap water.

4) Soak in a 0.1% alcohol solution of hydrochloric acid (0.25%) for 30 sec

5) Rinse with tap water to remove excess HCl. 6) Dehydrate in alcohols of increasing concentration:

- 50% alcohol – 30 sec
- 70% alcohol – 30 sec
- 80% alcohol – 30 sec

In many countries, and in accordance with WHO recommendations, the Bethesda Terminology System (TBS) has been developed and implemented for the interpretation of cytological data. The system was last revised in 2001. This system for evaluating cytological data is considered the most suitable for clinicians in the field of cytological information.

TBS (TBS) allows for standardization of diagnosis, treatment strategies, and patient monitoring.

7) Stain with Orange G for 4 minutes.

8) Rinse in a container with 95% alcohol in three 30-second increments.

9) After rinsing, stain the smears in a prepared solution of EA-50 stain for 4 minutes.

10) Next, dehydrate the specimen sequentially:

- in 100% alcohol for 30 seconds
- in a 95% alcohol-xylene mixture (1:1 ratio) for 30 seconds
- and twice in pure xylene for 30 seconds each.

11) To preserve the color of the specimen stained using the Papanicolaou method, fix it with a coverslip using synthetic balsam. To do this, apply a drop of balsam to the working area of the smear with a pipette and cover with a coverslip, then air-dry.

Results. We analyzed 250 cases of cytological smears during 2022. Of these 250, 12 cases of ASCUS and 238 cases of inflammation of various etiologies were identified.

According to age indicators, ASCUS (atypical squamous cells of unknown significance) was most prevalent in the 38-41 year old age group.

Year	Number of smears	ASCUS	Inflammation
2022	250	12	238

Age of women	Number of identified ASCUS.
20 – 30 year.	1
31 – 40 year.	7
41 – 50 year.	3
51 – 60 year.	1

Conclusions. According to current international guidelines for cervical screening, cytology reports should be issued in accordance with the Bethesda Terminology System (TBS), 2001. Issuing cytology reports in accordance with the TBS allows for:

- Early treatment of these changes and the prevention of cervical cancer.

- All women should undergo this test regularly between the ages of 25 and 45.

It is important for women scheduled for routine cervical cytology screening to understand that this test is not for the detection of cancer, but rather for the presence of treatable atypia (dysplasia), which can lead to the development of cervical cancer many years later.

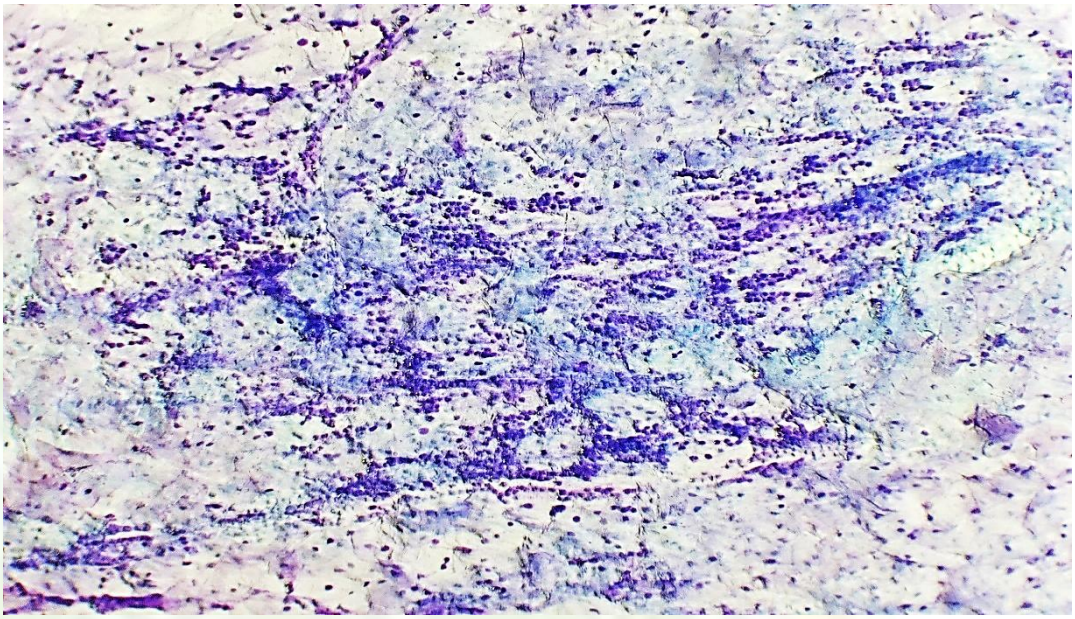

Photo 1. Cytological examination of the cervix. Atrophic cervicitis. Pap test. 4x10 approx.

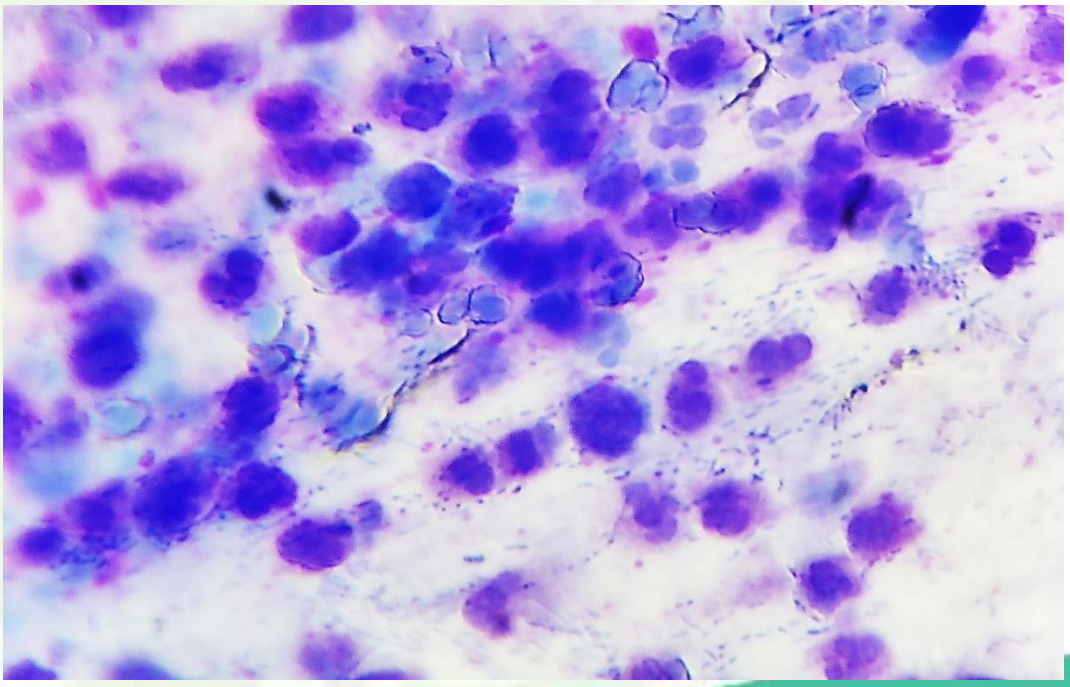

Photo 2. Cytological examination of the cervix. Acute cervicitis. Giemsa stain. 10x10 approx.

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