

## Evaluation of Morphological and Morphometric Changes in Postnatal Ontogenesis in Uterine Fibroids

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**Abstract:** This article evaluates morphological and morphometric changes in the postnatal ontogenesis of women with uterine fibroids. The study was conducted on 30 women who were treated at the Surkhandarya regional branch of the Republican Center for Specialized Oncology and Radiology. The single-layer epithelium covering the surface of the mucous membrane of the wall of uterine fibroids has a relatively low structure, that is, a prismatic shape, its thickness is small, and in severe forms of the disease, it is estimated that the thickness of all layers is quantitatively 2 times greater.

**Key words:** uterine fibroids, postnatal ontogenesis, morphology, morphometric, diameter, assessment.

### Introduction.

**Relevance of the topic:** Uterine fibroid is considered the most common disease among female genital diseases [3-4]. Uterine fibroid is one of the most widespread and growing diseases among the research conducted worldwide [2-3-4]. Uterine fibroid is very common among women of reproductive age: in 13-27%, every fifth patient with uterine fibroids has primary infertility, which later cause's secondary infertility in every fourth patient [1-4].

**Uterine fibroid** is a benign neoplasm (tumor) in the wall of the uterus or cervix. In addition, this disease is sometimes called fibromyoma,

leiomyoma. In most cases, there are many foci of myoma in the uterus, the size of each of them varies from several millimeters to several centimeters. To express the size of myoma, gynecologists use a comparative measurement with the size of the uterus of women at different stages of pregnancy (weeks) [5].

Malignant tumors of the cervix are one of the most important problems of oncogynecology, ranking third after malignant tumors of the mammary gland and uterine body [6-7].

Recently, the number of uterine fibroids among women of childbearing age is increasing. That is why European countries are paying special

attention to screening tests. Thus, studying the age-specific clinical course of the disease in patients with cervical cancer, determining the results of diagnosis and increasing the effectiveness of treatment is an urgent problem of clinical oncogynecology from a scientific and practical point of view [8-9-10].

The level of air pollution has increased significantly in recent years, and there is a lot of evidence that exposure to small harmful particles can have negative effects on breathing. Health effects of environmental exposure may affect prenatal air pollution, especially lung bronchial organogenesis [11-12].

The leading role of ovarian steroid hormones in the pathogenesis of uterine fibroids has been confirmed by a number of epidemiological, clinical and experimental studies. Based on the biological and genetic mechanisms of the formation and development of leiomyoma, it is possible to develop new ways of treating this disease. In patients with uterine leiomyoma, the use of Ella, Ella One, Esmya (ulipristal acetate) drugs is not only for preparation for surgery, but also makes it possible to avoid surgical treatment and associated hypo estrogenic conditions, and

**The purpose of the study:** Therefore, we aimed to evaluate the morphological and morphometric changes of the cervix in postnatal ontogeny of women diagnosed with uterine fibroid and undergoing total hysterectomy and without surgery.

**Research materials and methods:** For the research in our investigation, 30 women with uterine fibroids who were treated in the Surkhandarya regional branch of the Republican Center for Specialized Oncology and Radiology Scientific Applied Medicine during 2021-2023 were studied.

For examination, anamnesis data, laboratory and instrumental examinations were conducted from the patients. For our study, patients were subjected to modern drug treatments.

General histological and histochemical methods were used for examination. The obtained materials were embedded in paraffin and then 3-5  $\mu\text{m}$  sections were prepared. They were stained with hemotoxylin-eosin, Van Gieson, and Weigert methods.

In addition, the morphometry of the tissue of the cervical myoma was studied: the diameter, the thickness of its layers (inner, middle, outer), and the ratio of smooth muscle and connective tissue were studied.

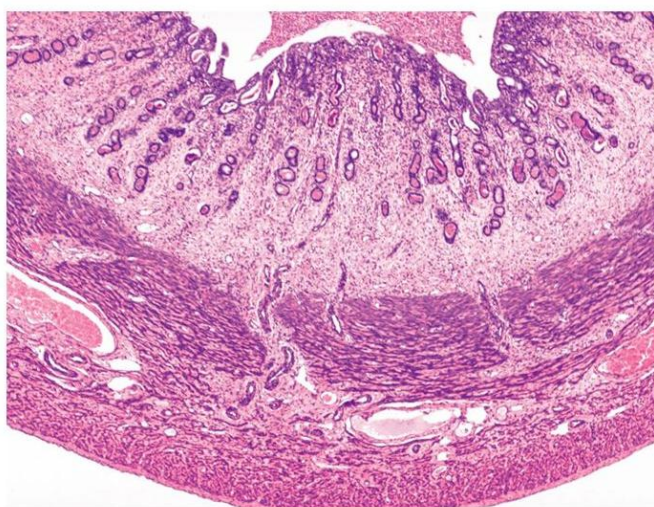
**Examination results:** patients with cervical myoma are characterized by a severe course of the disease, abnormal uterine bleeding was observed in all patients 100%, headache 90%, heaviness in the lower abdomen, pains 88 %, dizziness and general weakness in 100%, fever in 70%, pelvic pain in 75%, bladder dysfunction (dysuria) in 60%, bowel dysfunction (dyschesia) in 50% of patients. See diagram 1.

Anti-disease patients were treated with different standard of care. When we treated all patients according to the modern standard, there were significant changes in the clinic.



allows women to improve their quality of life [13].

If we analyze the morphometric indicators of the layers of the uterine wall separately, the single-layered epithelium covering the surface of the mucous membrane during the disease has a relatively low structure, that is, its thickness is small due to its prismatic shape, quantitatively, all layers it was determined that it was  $5.0 \pm 1.08\%$  of its thickness. Due to the increase in the volume of single-layer prismatic epithelium due to the mild form of the disease, it was observed that its thickness also increased slightly, on average it was  $6.3 \pm 1.2\%$ . The same dynamics was observed in the later youth of the postnatal period, it was found that it reached  $7.4 \pm 1.3\%$  in the medium-severe form, and  $8.2 \pm 1.4\%$  in the severe form. Based on these quantitative data, if we make a general conclusion, it was found that the epithelium covering uterine fibroid thickened almost twice during the postnatal ontogenesis, starting from the mild form of the disease to the severe form. See Figure 1.

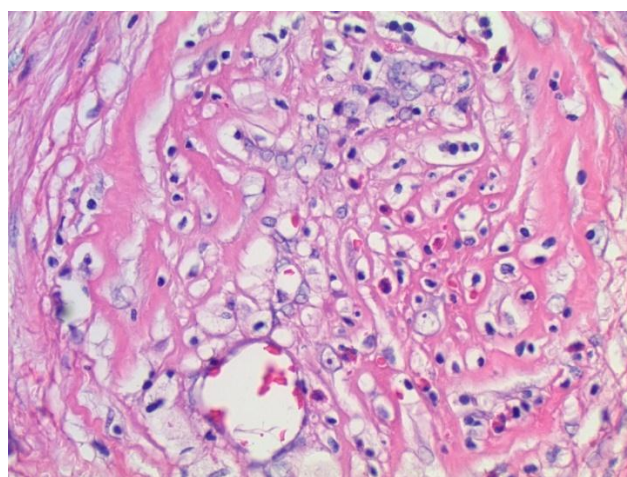


*Figure 1. 35 years of age. 1st endometrium, 2nd myometrium, 3rd perimetrium layers, 4th myomatous node in the wall of the uterus where myoma of the uterine cervix is preserved. Stained with hemotoxylin-eosin method. Enlarged image in 10x40 size.*

When there are myomatous sub mucosal nodes with a diameter of not more than 3-4 cm in a cervical myoma, organ-preserving surgery is

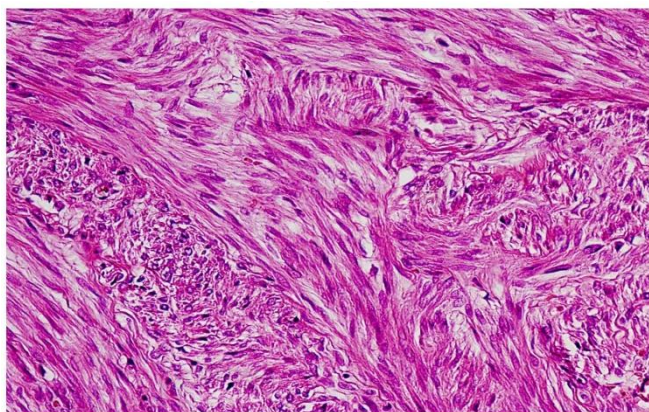
indicated: hysterectomy operation: For subserous, interstitial myoma or combined growth of nodes, uterus preservation or hysterectomy myomaectomy is performed. Conservative myomectomy is preferred in women with reproductive failure. Even if one node is larger than 5 cm, it is better to perform the operation before pregnancy, because the combination of fibroids and pregnancy is unfavorable for any outcome (pregnancy, medical abortion, spontaneous abortion).

In the study, the microscopic examination of the tissue structures of the wall of the uterine fibroids showed that the covering epithelium was relatively thinned, its size was reduced, and it was observed that it took a prismatic shape. It was observed that the nuclei of covering epithelial cells were relatively darkly stained and randomly located. In the private plate, it was observed that there is a relatively increased number of fibers, the presence of unformed connective tissue with irregularly arranged cells, and that the connective tissue is connected to the wall of blood vessels around the myoma of the uterine cervix. See Figure 2-3



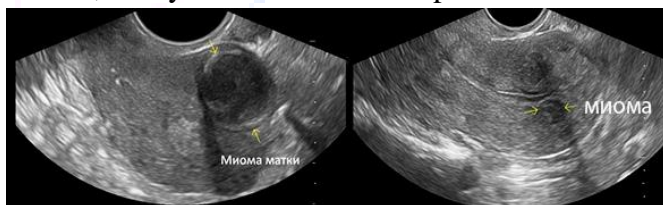
*Figure 2. 30 years of age. Cervical myoma (leiomyoma) is the increase and density of connective tissue bundles in the wall of the preserved uterus (1). Painted by the Van-Gieson method. 10x40 enlarged image.*



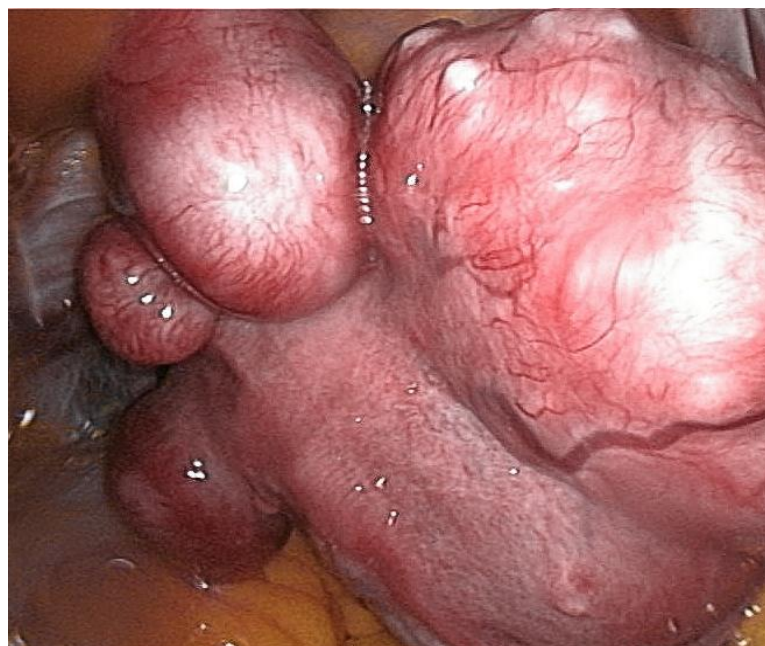


*Figure 3. 35 years of age. Part of the leiomyoma in the wall of the uterus, where the fibroid of the cervix is preserved. The demonstration was observed. Stained with hemotoxylin-eosin method. 10x40 enlarged image.*

Instrumental examinations were performed on all patients with cervical myoma: UTT, MRI, MSCT, X-ray examinations. See pictures 4-5.



*Figure 4. 40-year-old woman UTT examination. An image of the abnormal tissue in the wall of the uterus with preserved cervical myoma (leiomyoma) (1). Enlarged image of the Semens UTT probe.*



*Figure 5. Endoscopic examination of a 45-year-old woman. An image of loose tissue in the wall of the uterus where a uterine fibroid has been preserved.*

**Conclusion:** Based on the data collected in our study, it led to the conclusion about the relative expediency of using hysterectomy operation in patients with intermuscular location of cervical myoma nodes;

The single-layered epithelium covering the surface of the mucous membrane of the wall of the uterine fibroid has a relatively low structure, that is, a prismatic shape, and its thickness is small, and in the severe form of the disease, we have determined that the thickness of all layers is quantitatively 2 times thicker if there is a dominant node not exceeding 7-9 cm;

With an enlarged uterus up to 12-14 weeks of pregnancy; with recurrence of uterine fibroids after conservative myomectomy; since uterine myoma is a growth resulting from somatic mutation of myometrial cells under the influence of various harmful factors, its prevention should be based on maintaining a healthy lifestyle and reproductive health.

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