

# Pathomorphology of Endometrial Hyperplasia Detected by Ultrasound in Women Due to Abnormal Bleeding

Khamidov Obid Abdurakhmanovich<sup>1,\*</sup>, Jumanov Ziyadulla Eshmamatovich<sup>2</sup>,  
Usarov Mukhriddin Shukhratovich<sup>3</sup>

<sup>1</sup>Associate Professor Department of Medical Radiology, Faculty of Postgraduate Education, Samarkand State Medical University, Doctor of Medical Sciences (DSc), Associate Professor, Uzbekistan

<sup>2</sup>Professor of the Department of Pathological Anatomy of Samarkand State Medical University, Doctor of Medical Sciences (DSc), Uzbekistan

<sup>3</sup>1st year Basic Doctoral Student of Medical Radiology of the Faculty of Postgraduate Education of Samarkand State Medical University, Uzbekistan

**Abstract** In order to investigate the hyperplasia of the endometrium layer detected by ultrasound examination due to abnormal bleeding in women, uterine scrapings from 51 patients were examined. It was found that the hyperplasia of the uterine endometrium layer detected by ultrasound examination is of various forms, most of which are simple hyperplasia. It is noted that the incidence of simple atypical hyperplasia of the endometrium has increased recently. It is noted that complex atypical hyperplasia is rare among the patients studied, and it is noted that the detection of squamous cell metaplasia in most of them does not mean that it has transformed into adenocarcinoma.

**Keywords** Abnormal bleeding, Ultrasound examination, Uterus, Endometrium, Hyperplasia

## 1. Introduction

The number of patients with various pathologies of the endometrium of the uterus in women around the world is increasing day by day [1]. Also, the most frequently detected pathological condition among endometrial pathologies is endometrial hyperplasia [3]. A number of metabolic processes play a role in the development of endometrial hyperplasia: hyperestrogenism, endometrial cells, endometrial receptor retinal cells and dysfunction [4,6,7]. The general features of endometrial hyperplasia are transformed cells and hypertrophic sclerosis [2]. At the same time, the problem of endometrial hyperplasia remains relevant due to the diseases associated with the functions of the female reproductive system, as well as a decrease in the quality of life and the need for hospitalization for interventions such as removal of the endometrial layer and cleaning of the mucous membrane [5].

**The purpose of the study:** Conducting a pathomorphological analysis of endometrial hyperplasia detected by ultrasound examination in women with abnormal bleeding.

## 2. Materials and Methods

Endometrial scrapings from 51 patients with endometrial hyperplasia detected by ultrasound were examined at the Department of Gynecology of the Multidisciplinary Clinic of Samarkand State Medical University. Histological sections were stained with hematoxylin-eosin and subjected to pathomorphological analysis.

Hematoxylin and eosin staining procedure:

It is the most widely used method for staining histological sections.

Sections are deparaffinized in chloroform, washed in distilled water, then a solution of hematoxylin is dripped onto the surface of the section and fixed for 3 minutes. It is washed in running water for 10 minutes and stained with eosin for 0.2 to 3 minutes. Dehydrated in 70° and 96° alcohol, transferred to carbol-xylene and xylene and covered with balsam.

Result: cell nuclei are stained blue-black, cytoplasm - dark purple.

Histological preparations were studied and photographed using a LeicaGME microscope (Leica, India) coupled with a LeicaEC3 digital camera (Leica, Singapore) and a Pentium IV computer. Photo processing was carried out using Windows Professional applications.

## 3. Results and Discussion

The results of the study show that microscopic examination of preparations prepared from uterine scrapings reveals thickening of the endometrial layer, an increase in the number

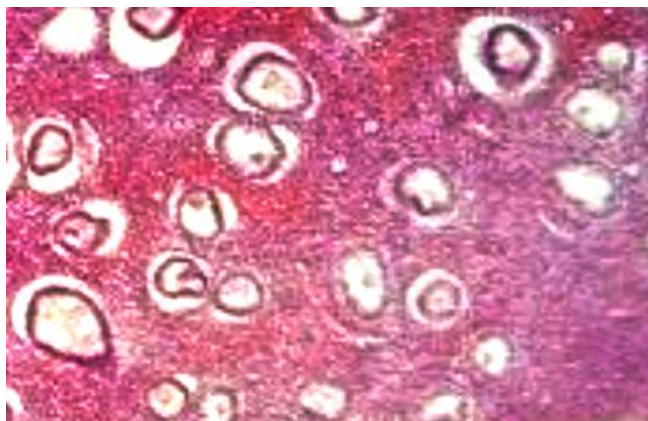
\* Corresponding author:

oxamidov@gmail.com (Khamidov Obid Abdurakhmanovich)

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of glands and stromal tissue elements. Enlargement of the glands of various shapes and sizes is noted. In particular, cystic enlargement of the glands is observed (Figure 1).



**Figure 1.** Cystic enlargement (hyperplasia) of the glands of the uterine endometrium. Stained with hematoxylin-eosin. Ob.40, ok.10

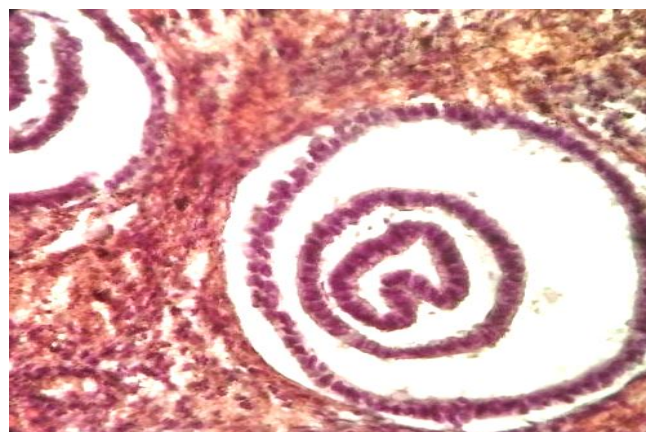
The epithelial cells in the glands are found to be in a state of proliferation and division of the nuclei. Their stroma is noted to be rich in cells and blood vessels. In some preparations, a small amount of stroma is noted in the interstices of the glands. However, it is observed that the cells in the glands are of the same size and shape (Figure 2).



**Figure 2.** Cystic dilated glands of the uterine endometrium contain cells of the same size and shape. Stained with hematoxylin-eosin. Ob.40, ok.10

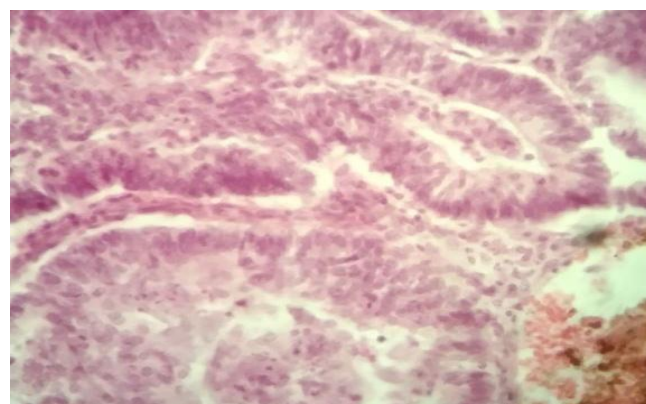
The preservation of the basement membrane is determined. In the field of view of some preparations, an atypical position of cells, multi-row glands, and a spongy growth in their cavity are observed. An increase in the size of epitheliocytes is noted. Their nuclei are hyperchromic, their shape is round, and their size is large. In their interstices, a large number of epitheliocytes in a state of mitotic division, and swelling of the stroma are noted. In other preparations, an increase in epitheliocytes in the content of the glands and signs of atypism are determined. Due to a significant decrease in their stromal elements, the glands are located very close to each other, in most cases side by side. It is noticeable that some glands grow spongy into the gland cavity and stroma. Pathological mitosis is detected in most epitheliocytes. In some areas of these preparations, foci of squamous cell

metaplasia are noted. In some cases of uterine hyperplasia, it is determined that it is long-term and the epithelialization process is ongoing. In addition, many glands are formed inside the glands, which are even located in three layers (Figure 3).

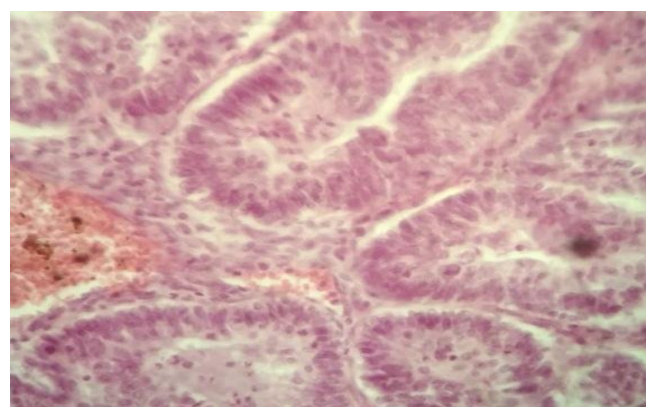


**Figure 3.** Formation of glands within the glands located in the endometrial layer of the uterus (endometrial hyperplasia). Stained with hematoxylin-eosin. Ob.40, ok.10

In some preparations (in 2 cases), the malignancy of the glands in the hyperplasia and signs of adenocarcinoma are detected (Figures 4-5).



**Figure 4.** Hyperplasia of the uterine endometrium. Malignant state of the glands and signs of adenocarcinoma. Stained with hematoxylin-eosin. Ob.40, ok.10



**Figure 5.** Hyperplasia of the uterine endometrial layer. Signs of adenocarcinoma of the glands. Stained with hematoxylin-eosin. Ob.40, ok.10

## 4. Conclusions

Thus, the various forms of hyperplasia of the uterine endometrium detected by ultrasound are diverse, the majority of which is simple hyperplasia. In addition, many glands are formed inside the glands, which are even located in three layers. A recent increase in simple atypical hyperplasia of the endometrium is noted. Complex atypical hyperplasia is rare among the patients studied, and in most of them the detection of squamous cell metaplasia does not mean that it has transformed into adenocarcinoma.

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