

## Morphological features of endometrial changes

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During the last years hyperplastic changes of uterus have become a rather complicated and urgent problem involving false malignant changes, "capacitative" enlargements of uterus, characterized by participation of great amount of glands. Hyperplasia of glands is one of the causes of malignant processes development in uterus. Researchers have revealed expressed metaplasia and endometrial epithelium dysplasia at hyperplastic processes of endometrium [1-3].

The development of endometrial hyperplastic processes (including polyps), leiomyomas of uterus, as well as the condition of the lower parts of genital tract's mucosa are in close connection with hormonal disbalance, such as hyperestrogenemia and progesterone insufficiency [1,3,6]. There are some opinions, according to which in hyperplastic processes of endometrium when lymphoid-cellular infiltration of stroma is detected, focal fibrosis may occur possibly in result of desmoplastic properties of hyperplastic endometrium [4].

Hyperplastic processes of endometrium (especially in postmenopausal women) sometimes can cause uterus bleeding and vaginal discharge, which results in increasing the risk of oncological diseases often estimated by clinicians as an initial symptom of malignant neoplasms of genital organs. Endometrial hyperplastic processes can be displayed by acyclic menorrhages and pains in abdominal cavity [4,5].

Mononuclear infiltration, focal fibrosis of endometrial stroma, sclerosis of the walls of spiral arteries are referred to as manifestations of hyperplastic processes [2]. At the same time, metaplasia and associated changes of endometrial and metaplastic epithelium can serve as symptoms of hyperplastic processes. Till now the possibility of mutual influence of these basic pathological processes has been still out of the attention of scientists.

### Materials and Methods

The investigation is based on the results of the histological study of bioptical operative materials and is aimed to determine the morphological features of the hyperplastic processes of endometrium, as well as to reveal the

cause of patients' complaints.

The operative materials; endometrium scrubs, and aspirates obtained from 45 women during 1995 were examined histologically. The average age of the women was 44,4 years. The materials were fixed in 10% buffered formalin solution and were embedded in paraffin. Paraffin sections (4mcm) were stained with hematoxylin and eosin.

### Results and Discussion

The investigation materials were subdivided into the following groups according to the age periods (table 1):

Table 1

Age periods	pubertate	reproductive	premenopausal	menopausal
Age (years)	11 - 19	20 - 43	44 - 52	53
Number of cases (45)	1	14	26	4
%	2,2	31,1	57,8	8,9

According to the table the main contingent is represented by the patients of premenopausal age period, which is characterized by severe hormonal changes, accompanied by physiological depression of reproductive function and hormonal homeostasis reconstruction. The next group is socially more active - reproductive age [14]. The group of the women of pubertate and menopausal age periods is the smallest one group due to the rarity of cases.

The overwhelming majority of the patients had been suffering from uterus bleeding and vaginal discharge accompanied by menometrorrhage, polymenorrhea and anemia. According to the histological investigation results of biopsy and operative materials, the following nosological units causing uterus bleedings were distinguished (tab. 2).

According to the table, the most frequent cause of uterus bleedings is myoma of uterus, which has various histological structures in comparing with myoma, in which fibrosis and sometimes calcification prevails. Cel-



Table 2

Disease	Quantity of patients
	absolute (%)
Myoma	18 (47,4)
Chronic inflammatory diseases of genital tract	6 (15,8)
Hyperplastic processes of endometrium including polyps	9 (23,7)
Precancer and cancer of uterus	5 (13,1)
Total	38 (100)

Table 3

Types of hyperplasia	Quantity of patients
	absolute (%)
Glandular	16 (41)
Atypical	6 (15,4)
Simple	2 (5,1)
Complex	10 (25,6)
Precancer with hyperplasia	3 (7,7)
Cancer with hyperplasia	2 (5,1)
Total	39 (100)

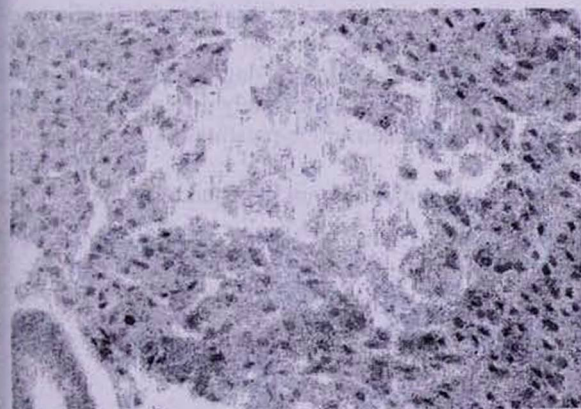
cellular myoma was found more rarely, and epithelioid-cellular myoma was met only in one case. Hyperplastic processes of endometrium (including polyps) follow the mentioned diseases, represented by focal glandular hyperplasia. Retrogressive polyps prevail among polyps. Chronic inflammatory diseases of genital tract and cancer of uterus as causes of bleeding and blood exchange had the same rate of occurrence - 6 and 5 cases correspondingly.

Uterus bleedings and vaginal discharge are referred to precancerous lesions, especially in menopausal women, and often are estimated by clinicians as symptoms of malignant neoplasms. However, according to the investigated materials, we may conclude that more frequent causes

of uterus bleedings and vaginal discharge are benign processes of uterus. Displastic changes of covering and glandular epithelium of endometrium in chronic inflammation can serve as a basis for malignant regeneration.

The following types of hyperplasia are distinguished depending on the histological examination results (tab. 3).

According to table 3 glandular and complex types of hyperplasia were found more frequently (16 and 10 cases correspondingly). Precancer and cancer of uterus corpus associated with hyperplasia were found in 3 and 2 of cases. Focal glandular hyperplasia was often associated with squamous cell metaplasia of covering and glandular epithelium (Fig. 1a), more rarely with mucinous metaplasia of endometrial epithelium (Fig. 1b).



a



b

Fig. 1. Focal glandular hyperplasia of endometrium: a) with squamous cell metaplasia of glandular epithelium, b) with mucinous metaplasia of endometrial epithelium. Hematoxylin-eosin staining, magnification X 400.

Squamous cell metaplasia of glandular epithelium mainly developed from the periphery of gland to the center, in some cases against the background of "remained" glandular epithelium, squamous cell metaplasia of central parts of glands was found. In patients with leiomyoma ciliar metaplasia of endometrial epithelium was found. The process of replacement of endometrial epithelium by ciliar type involves more than one gland (Fig. 2).

Eosinophilic and light-cellular changes were observed in focal hyperplasia. Adenoacantosis in some cases can be referred to as a precursor of morulation associated with metaplasia of cytoplasmic changes of epithelium. Typical morulations with focal accumulation of squamous epithelial cells with central necrosis and leukocyte infiltration were found as well (Fig. 3).



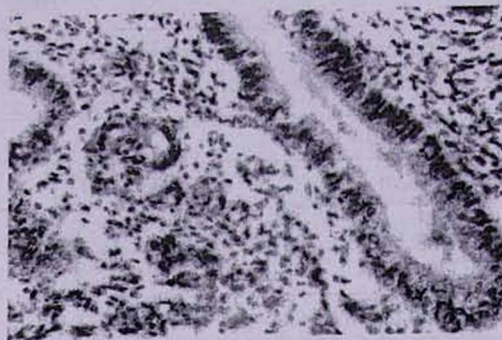


Fig. 2. Leiomyoma of uterus - ciliar metaplasia of endometrial epithelium. Hematoxylin-eosin staining. Magnification X 400

lular myoma was found more rarely, and epithelioid-cellular myoma was met only in one case. Hyperplastic processes of endometrium (including polyps) follow the mentioned diseases, represented by focal glandular hyperplasia. Retrogressive polyps prevail among polyps. Chronic inflammatory diseases of genital tract and cancer

Morulations with microabscesses and metaplastic epithelial cell accumulation were also revealed. All types of metaplastic changes of endometrium can imitate cancer of endometrium, which is an important sign for pathologists. In this case the main difference between epithelial benign and cancerous changes are nuclear atypia and infiltrative growth. Besides metaplasia and associated cytoplasmic changes of epithelium, dysplasia also is considered to be a cell differentiation disturbance, which is characterized by the presence of cells with pathological signs. Irregular distribution of glands with their focal "accumulation", significant reactive glandular proliferation, imitating glandular hyperplasia and even adenocarcinoma of endometrium, are also met. In precancerous and cancerous processes accompanied with hyperplasia dis-

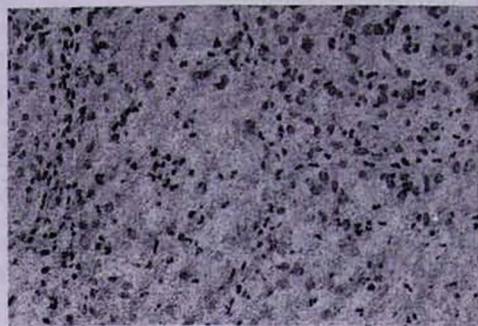


Fig. 3. Typical morulations in the endometrium. Focal accumulations of stratified squamous epithelium with central necrosis and intensive infiltration with neutrophils. Hematoxylin-eosin staining, magnification X 400

plastic changes of epithelium of the I or rarely II degree of dysplasia were revealed too. In pubertate patients the similar structures were not found. But changes were revealed in patients of pre- and postmenopausal period. The above mentioned changes of endometrial epithelium were observed mainly in superficial epithelium and in the glandular epithelium, which were localized in the upper parts of endometrial functional layer. More rarely they were found in the glands localized in deep parts of the functional and in the basal layer of endometrium.

Chronic inflammatory infiltrates were revealed in 6 patients represented by small focal accumulations of lymphocytes with admixture of occasional neutrophil granulocytes and plasma cells and with complete absence of macrophage cells. A characteristic feature of inflammatory infiltrate was the presence of large amount of basophils with unapparent signs of degranulation. The same picture was found in the moderately differentiated adenocarcinomas of endometrium in patients of menopausal age period.

In conclusion, more commonly glandular and complex

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## Էնդոմետրիալ փոփոխությունների ձևաբանական առանձնահատկությունները

Գ.Գ. Աղաբեկյան, Լ.Է. Այվազյան, Կ.Ա. Արսենյան

Հյուսվածաբանական մեթոդներով հետազոտվել են արգանդի լորձաթաղանթի բիոպսիոն և վիրահատական նյութեր ստացված 45 պուերերտատ, ռեպրոդուկտիվ, պրենմենոպաուզալ և մենոպաուզալ տարիքի հիվանդներից: Բոլոր տարիքային խմբերի հիվանդների մոտ հաճախ հայտնաբերվում է գեգձային և համակարգված հիպերպլազիա, մետապլազիա

(լորձային, քաղցրային, տափակբջջային) և կապված նրանց հետ էնդոմետրիալ էպիթելի փոփոխություններ: Առավել հաճախ նշված փոփոխություններն և դիսպլազիան զարգացել էին պրենմենոպաուզալ և մենոպաուզալ տարիքի կանանց մոտ: Պուերերտատ տարիքի հիվանդների մոտ դիսպլազիան չի հայտնաբերվել:



## Морфологические особенности эндометриальных изменений

Г.Г. Агабекян, Л.Э. Айвазян, К.А. Арсенян

Проведено гистологическое исследование соскобов, аспиратов эндометрия, а также операционного материала у 45 пациенток пубертатного, пременопаузального, менопаузального возраста. У пациенток всех возрастных периодов часто наблюдались железистая и комплексная гиперплазия, метаплазия (муцинозная,

реснитчатая, плоскоклеточная) и связанные с ними изменения эндометриального эпителия. Наиболее часто эти изменения и дисплазия развивались у пациенток пременопаузального и менопаузального возраста. В пубертатном возрасте эти изменения встречаются редко, а дисплазия не развивается.

### Literature

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