

## THE IMPORTANCE OF STUDYING THE STRUCTURE OF BLOOD SERUM IN GYNECOLOGY

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**Abstract.** *One of the rapidly developing areas of clinical diagnostics in modern medicine is the study of the structuring processes of biological fluids - complex multicomponent systems that dynamically change during metabolic disorders and other pathological processes. Goal of work was to study the significance of the structure of blood serum in gynecology, in particular in patients with abnormal uterine bleeding. We examined 50 patients with AUB who were treated in the gynecological department of the multidisciplinary clinic of SamSMU for the period from 2022 to 2023. Analyzing the results of the study, we found that there is a significant connection between the structural organization of blood serum and the phenomena of AUB.*

**Keywords:** *structure of blood serum, blood serum (BS), abnormal uterine bleeding (AUB), Endometrial hyperplastic processes (EHP), endometrial hyperplasia (EH).*

**Relevance.** One of the rapidly developing areas of clinical diagnostics in modern medicine is the study of the structuring processes of biological fluids - complex multicomponent systems that dynamically change during metabolic disorders and other pathological processes. The study of the morphology of biological fluids is an additional laboratory diagnostic method that allows one to determine not specific indicators of the composition of a biological fluid, but the interaction of all its components and energy connections between them, reflecting metabolic and systemic disorders in the organs and tissues of the mother during a specific period of time [1, 8, 12].

The wedge-shaped dehydration method was the methodological basis for studying the morphological structures of biological fluids. The facies structure of a biological fluid is an integrated special method of cell transformation at the macroscopic level.

Discovery by E.G. The study of the phenomenon of protein self-organization when drying it under nonequilibrium conditions marked the beginning of an intensive study of the structurization features of biological fluids for the purpose of medical diagnostics when they naturally dry in the form of a drop [5,9,15]. The process of self-organization of plasma or blood serum is extremely interesting and very complex.

**Aim of the study.** to study the significance of the structure of blood serum in gynecology, in particular in patients with abnormal uterine bleeding.

**Materials and methods.** Taking into account our goals, we examined 50 patients with AUB who were treated in the gynecological department of the multidisciplinary clinic of SamSMU for the period from 2022 to 2023.

The age of the women ranged from 43 to 51 years, on average  $46.7 \pm 2.4$  years.

A comprehensive clinical and laboratory examination included examination of the external genitalia, vagina, and cervix in speculums; bimanual examination, ultrasound examination of the pelvic organs, morphological study of the structure of blood serum.

All patients of the main group were diagnosed with endometrial hyperplasia (EH), as a result of which diagnostic curettage was performed under appropriate conditions. In a detailed analysis of the data, the patients were divided into 2 groups based on the presence of hyperplasia and its recurrence: group 1, patients with primary endometrial hyperplasia (n=30), group 2, patients with recurrent endometrial hyperplasia (n=20).

For variational and statistical processing of the research results, the Statistica6.0 program was used to determine the key variational indicators of the mean (M), error of the mean (m) and standard deviation (p). The reliability of the results obtained was determined using the Student's test. When the P value was less than 0.05, the difference between the two means was considered significant. The reliability level was at least 95%.

**Results and discussion.** When studying somatic pathology in patients, it was revealed that half of the patients in the main group - 27.27% - had chronic inflammatory diseases of the upper and lower respiratory tract, which was significantly more common than in the control group - 15%,  $p < 0.001$ .

To assess the condition of the endo- and myometrium, all patients underwent an ultrasound examination at the time of treatment. In patients with bleeding, the M-echo ranged from 17 to 35 mm, with an average of  $21.7 \pm 4.5$  mm. Of the 35 women who applied with bleeding and hyperplasia, 21 (60%) had an M-echo from 17 to 23 mm, and 5 (16.13%) were diagnosed with endometrial polyps. In 15 (78.94%) patients from the second group, the M-echo ranged from 24 to 35 mm, on average -  $29.2 \pm 1.8$  mm; ultrasound revealed endometrial polyps in 5 patients (26.32%).

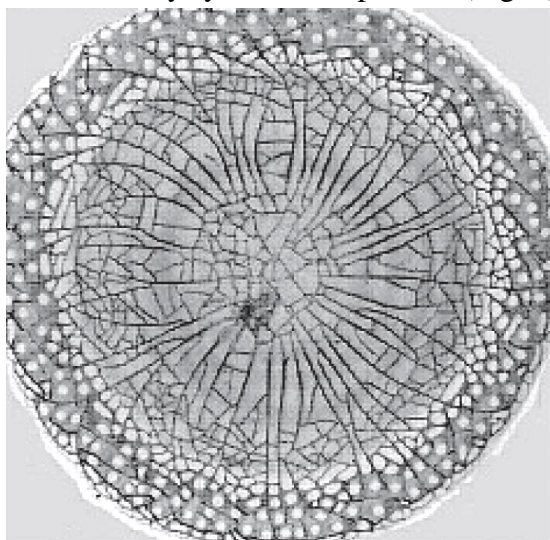
All patients, taking into account age, abnormal uterine bleeding and endometrial hyperplasia, were recommended to undergo diagnostic curettage. After curettage, the specimen was sent for histological analysis to determine the morphological picture of hyperplasia.



*Figure 1. Structural picture of blood serum in women of the first group*

We determined the importance of studying the structural and optical properties of blood serum from women with abnormal uterine bleeding. In the first group of 30 women with AUB and endometrial hyperplasia, with a single determination of the structural and optical properties of blood serum using the wedge-shaped dehydration method, the morphological picture of the fascia had a moderate level of structural structure and a radially symmetrical pattern (Fig. 1).

Group 2 included 20 women with relapse of endometrial hyperplasia and those admitted with a complaint of abnormal uterine bleeding. When studying the optical density of blood serum in group 2, 25% had a morphological type of fascia with an extremely low level of structural organization and the absence of a radially symmetrical pattern. (Fig.2.)



**Figure 2. Structural picture of blood serum in women of the second group**

Conclusion. Analyzing the results of the study, we found that there is a significant connection between the structural organization of blood serum and the phenomena of AUB. The possibility of predicting the development and relapse of endometrial hyperplasia was determined when corresponding morphological types of blood serum fascia were detected in women, which had a radial symmetrical pattern with a hyperreactive type.

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