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Immunohistochemical expression of CD16 in the stroma of the endometrium in early miscarriage

Early pregnancy loss in the first trimester remains one of the urgent problems of modern obstetrics. Their frequency reaches 25% of the number of births (WHO data) [1]. It is known that the expression of CD16 receptors plays an important role in the early activation of natural killer (NK) cells and the maintenance of immune homeostasis in both T-cell and antibody-dependent signaling pathways [2]. Violation of this process may be one of the reasons for the development of early miscarriage.

Purpose. To assess the level of CD16 expression in the endometrial stroma during early miscarriage.

Materials and methods. Investigated 102 cases of early miscarriage (57 - missed pregnancy, 45 - spontaneous abortion), identified in women of the Grodno region. The median age of the study group of patients was 25.0 (22.0-32.0) years. The comparison group consisted of 18 women with artificial abortions and a favorable course of pregnancy, whose median age was 27.5 (24.0-31.0) years. The groups did not differ in terms of the median age of the patients ($p = 0.29$). When determining the gestational age in the patients of the study group, it was found that in most cases (70.6%) spontaneous abortion developed at the 7th week of pregnancy (7.0 (5.0-8.0)). In addition, 38 women (37.3%) had their first pregnancy, and 18 (17.6%) patients had a history of their first successful pregnancy, which ended in the birth of a healthy child. In 63 cases (61.8%), there was a concomitant gynecological pathology (erosion, adnexitis, etc.), and in 33 (32.4%) - various extragenital diseases (chronic gastritis, chronic pyelonephritis, etc.).

Endometrial scrapings were examined microscopically, histological sections were stained with hematoxylin and eosin. In the morphological analysis of the endometrium, it was found that decidual tissue with foci of necrosis and hemorrhage,

as well as pronounced leukocytic infiltration of the stroma, predominated in the scraping (Fig. 1).

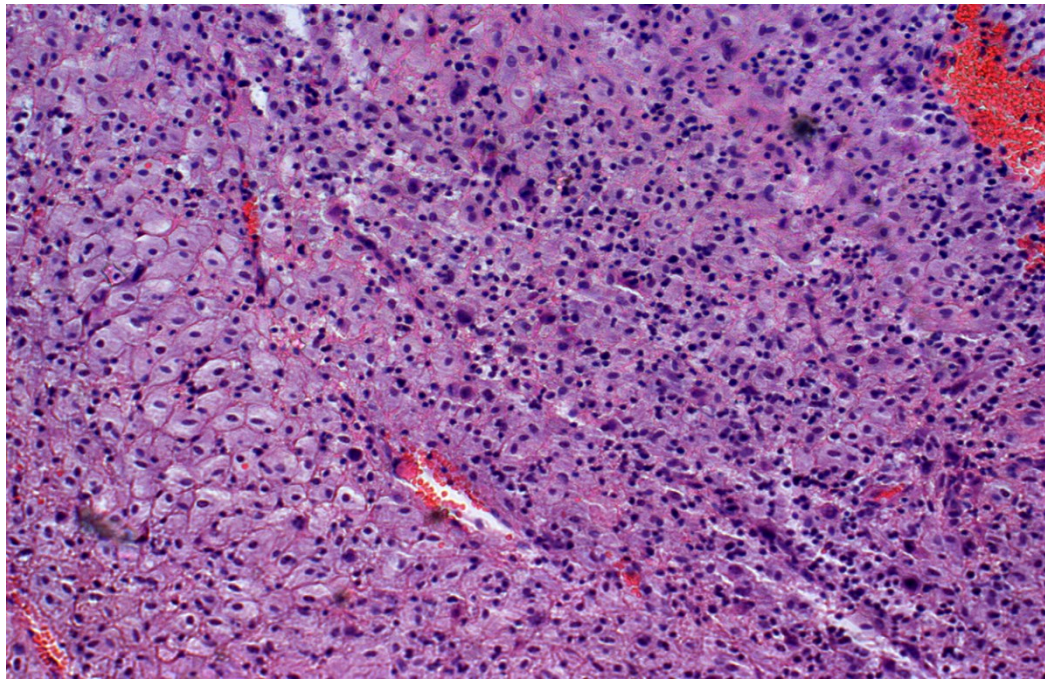


Figure 1. – Decidual tissue with hemorrhage and leukocytic infiltration.

H/E staining. Zoom×200.

Immunohistochemical study was carried out in 33 cases using primary antibodies to CD16 receptors. The results of the study were assessed using the morphometric method using the computer program Aperio Image Scope v9.1.19.1567.

Results. An immunohistochemical study (Fig. 2). revealed that the level of CD16 positivity in the endometrial stroma during miscarriage was 0.391 (0.348-0.492), which is lower than during physiological pregnancy (0.491 (0.401-0.639)).

This indicates a higher activity of natural killer cells (NK cells) during physiological pregnancy and their important role in maintaining immunological tolerance in the mother-fetus system [3]. However, the differences are not significant ($p > 0.05$).

Conclusions. The data clearly indicate the importance of a sufficient level of CD16 expression for the maintenance and favorable course of early pregnancy, but this marker cannot be used as a prognostic.

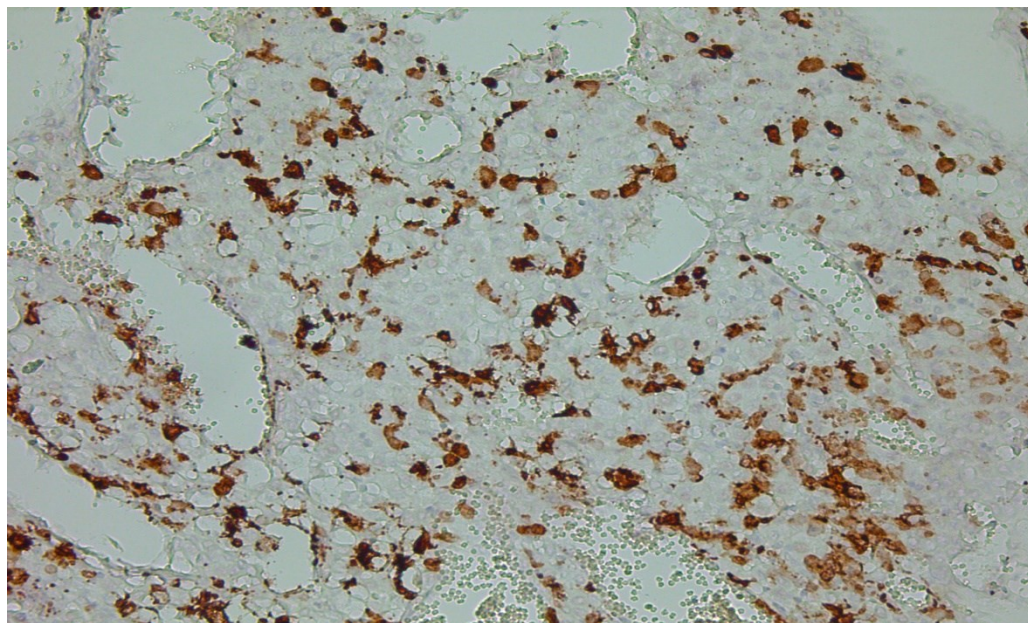


Figure 2. – Expression of CD16 in the study group. Anti-CD16 staining.

Zoom $\times 200$

Literature:

1. Robinson, G. E. Pregnancy loss / G. E. Robinson // Best Practice & Research. Clinical Obstetrics & Gynaecology. – 2014. – Vol. 28 (1). – P. 169–178.
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