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IMMUNOHISTOCHEMICAL CHARACTERISTICS OF UTERINE STROMAL SARCOMA

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ABSTRACT

For immunohistochemical study of malignant mesenchymal tumors of the uterus, 26 patients with uterine stromal sarcoma and 24 patients with uterine leiomyosarcoma were selected. In addition to the results of the morphological study, the expression of cells with monoclonal antibodies VEGF, Ki67 and Bcl 2 was studied using the Bond Leica Australia (Australia) immunohistoprocessor for immunohistochemical research, which is currently recognized as the gold standard in the world.

Key words: mesenchymal tumors of the uterus, sarcoma, immunohistochemical research.

INTRODUCTION

Relevance of the topic. Endometrial stromal tumors are rare uterine tumors (<1%).[7.4] The four main categories include endometrial stromal nodules, low-grade endometrial stromal sarcoma, high-grade endometrial stromal sarcoma, and undifferentiated uterine sarcoma.[8.3] endometrial stromal Sarcoma, a hormone-dependent tumor characterized by chromosomal rearrangements.[9.1] Uterine sarcomas are rare and aggressive gynecological neoplasms.[10.1] Immunohistochemistry is used to detect molecular structures in cells, to study cell localization, to study the spread or histogenesis of tumors, and to identify precancerous processes. In order to monitor these processes in their development, identify prognostic factors for diseases, determine the stages of tumors and treatment tactics, monitor dynamic monitoring and treatment processes, and identify risk groups for the development of tumor diseases. is essential to this investigation.[1.1]

The purpose of the scientific work is to study the immunohistochemical characteristics of uterine stromal sarcoma, develop recommendations for optimizing its diagnosis, classification and selection of treatment strategies.

Material and methods of investigation. The material was outpatient cards, medical histories, clinical examination results of patients who were treated and treated at the Khorezm branch of the Republican Scientific and Practical Center for Oncology in 2010-2023, as well as the results of examination of macropreparations obtained during operations and micropreparations prepared from them**.**

The obtained results and their discussion. 26 patients were selected for immunohistochemical study of pathologically malignant uterine stromal sarcoma. In addition to the results of morphological examination, the expression of VEGF, Ki67 and Bcl 2 monoclonal antibodies was studied using the Bond Leica Australia immunohistoprocessor (Australia) in addition to the immunohistochemical examination, which is currently recognized as the gold standard worldwide.

Stromal sarcoma VEGF Vascular endothelial growth factor (VEGF) and its receptors play a major role in many pathological angiogenesis, including cancer. VEGF regulates angiogenesis and vascular permeability through the activation of supergenes. The results of immunohistochemical examination of 26 patients with uterine stromal sarcoma were evaluated by the density of blood vessels per field of view. The results obtained showed that in all 26 patients, the density of blood vessels per field of view was 20-30 with a positive reaction of the endothelial layer of the blood vessels. This indicates that the blood supply of patients with this type of sarcoma is relatively high.[2.3] Immunohistochemical appearance: malignant tumor cells with sarcomatous transformation of stromal nature originating from the uterine corpus, accompanied by cell polymorphism, numerous pathological mitoses and foci of necrosis.[3.1] Polymorphism of fibrous tissue and myxomatous transformation of tissue is observed in the stroma. Blood vessel endothelial cells are polymorphic, with abundant cytoplasm, and the walls of blood vessels of various sizes are stained in a deep brown color (Fig. 1).

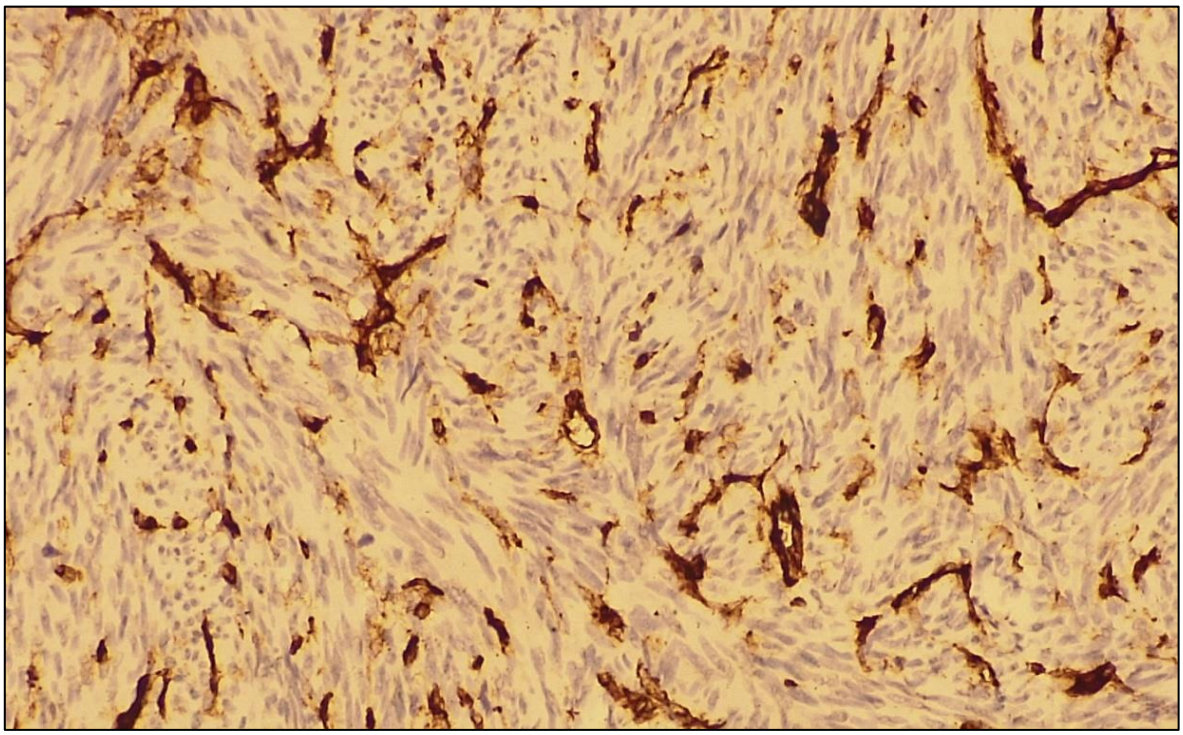
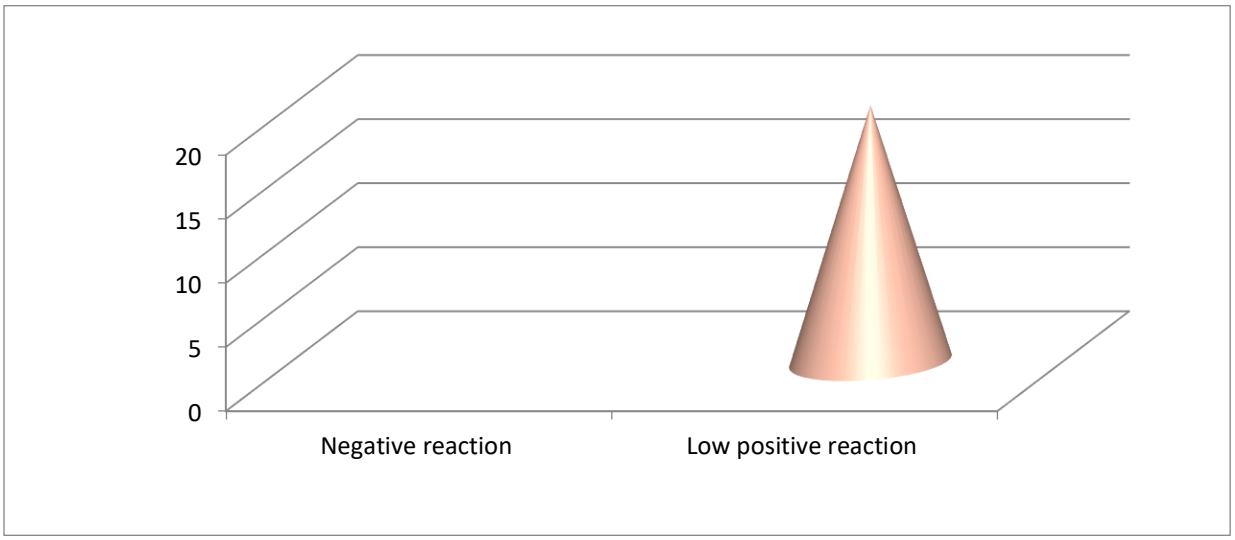


Figure-1. Positive reaction of the endothelium of blood vessels to the VEGF reagent in stromal sarcoma. Positive reaction of the blood vessel walls in 20-30 cases in one field of view. IHCh – Dab chromagen. Ob10. Ok40.

In stromal sarcoma, a positive reaction of the VEGF reagent was observed in all patients and a density of 20-30 blood vessels was detected in one field of view. A high positive reaction process was observed in all patients. A positive reaction of the endothelial wall of 20-30 blood vessels was observed in one field of view.



Results obtained with VEGF reagent in stromal sarcoma

diagram in tabular form No. 26

In all 26 selected patients with stromal sarcoma, the Ki67 marker of tumor cell proliferative activity was evaluated as a percentage. The results were characterized by nuclear staining of cells as follows: <10% low activity, 10-20% moderate activity, >20% high proliferative activity. Based on these results, the prognostic factor of cancer was assessed in the form of a mild, moderate and severe positive reaction. Of the 26 patients under observation, 6 (25%) had a moderate positive reaction and 17 (65%) had a high positive reaction. A low positive reaction was observed in 3 (10%) patients. No negative reaction processes were observed (Table-1)

Proliferative activity level of Ki 67 reagent in stromal sarcoma (No. 26)

Table 1.

№	Level	Patients (№26)
1	Less than 10% low activity	3 (10 %)
2	10-20% medium activity	6 (25 %)
3	>20% high proliferative activity	17 (65%)

Immunohistochemical appearance: malignant tumor cells with stromal sarcomatous transformation originating from the uterine corpus were characterized by cell polymorphism and the presence of numerous pathological mitoses, and foci of necrosis. Fibrous tissue and polymorphism of myxomatous transformation were observed in the stroma, and the cells had polymorphic cytoplasm and large nuclei stained in a dark brown color.

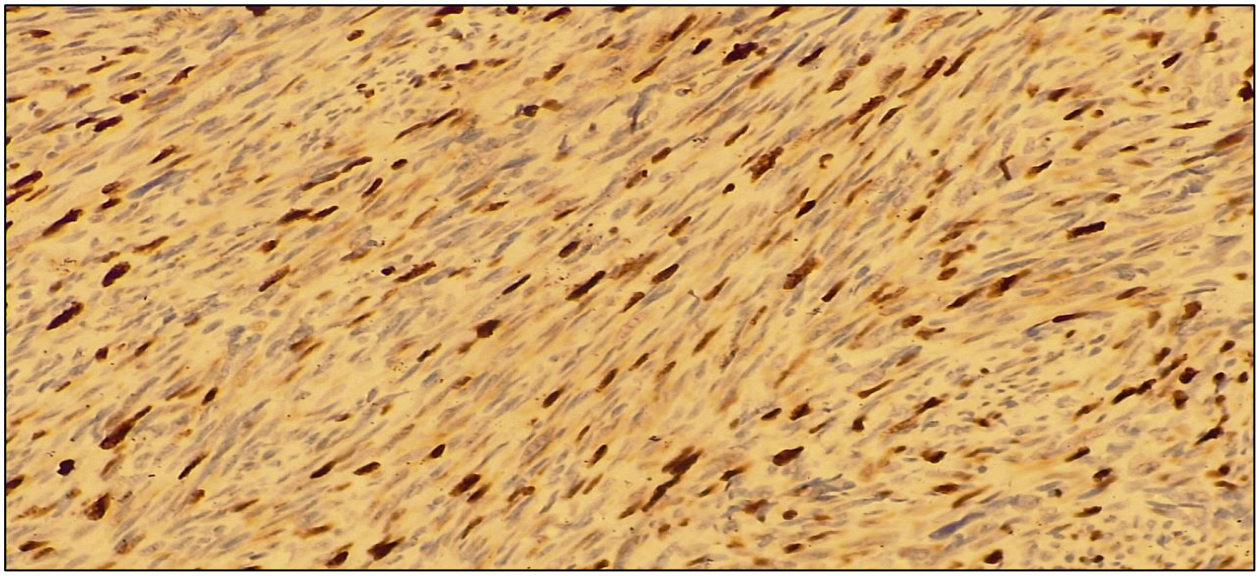
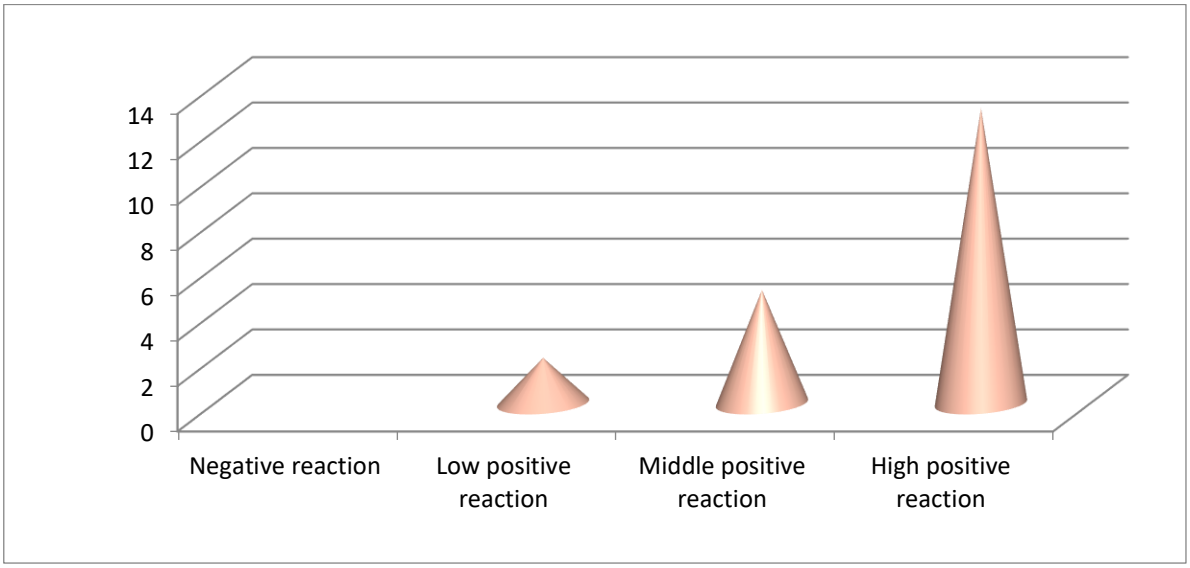


Figure 2. High positive reaction of Ki 67 reagent in stromal sarcoma. IHCh – Dab Chromagen. Ob10. Ok40

In stromal sarcoma, the dark brown staining of tumor cells indicates the presence of Ki67 protein.[4.3] In our study, 26 patients (65%) had highly proliferatively active cells. This suggests that highly proliferatively active cells with Ki67 protein in stromal sarcoma are indicative of the aggressive nature of this tumor, which may lead to relapse or spread to adjacent organs.[5.2]



In stromal sarcoma, the level of proliferative activity of Ki67 reagent is in the form of diagram No. 26

The Bcl-2 marker, a tumor apoptosis regulator that regulates cell death by monitoring mitochondrial membrane permeability, was used in 26 patients with uterine stromal sarcoma. The results were graded as mild, moderate, and severe positive reactions. Nine (35%) of the 26 patients had a moderate positive reaction, five (20%) had a low positive reaction, and 12 (45%) had a high positive reaction (Figure 3).

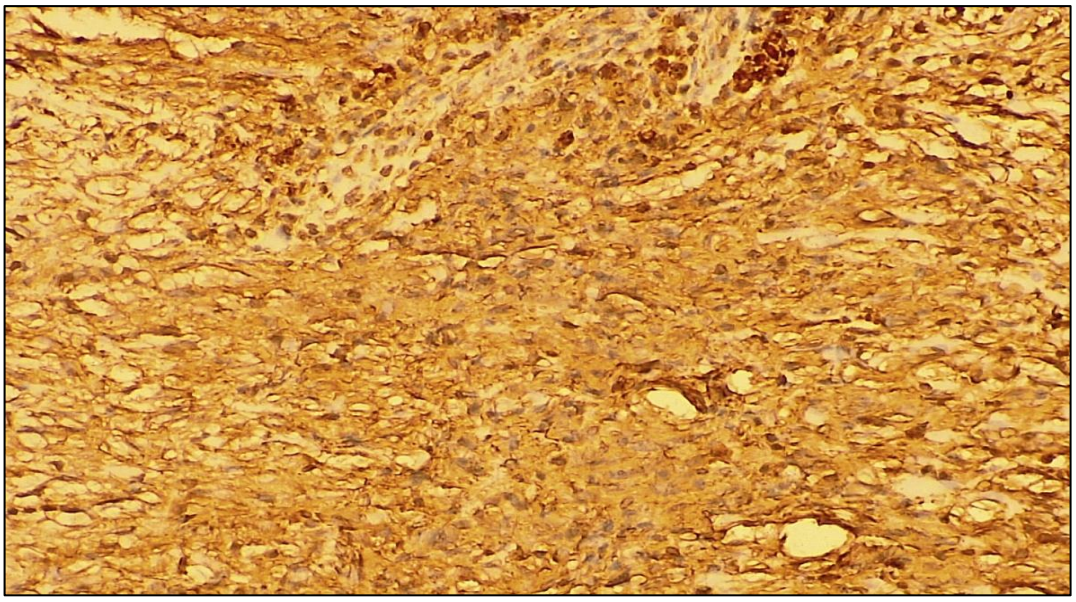
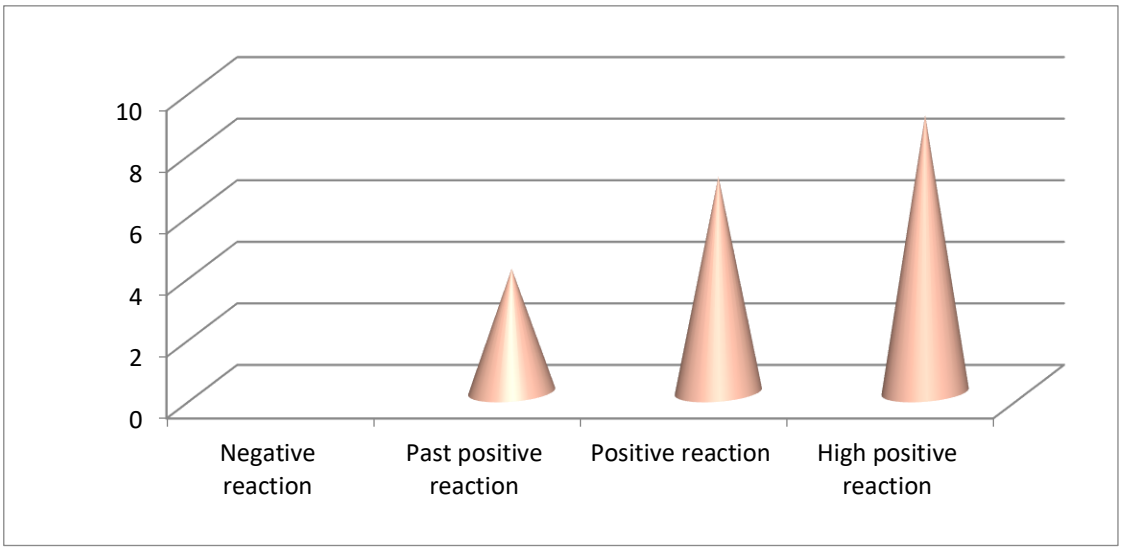


Figure-3 High positive reaction of Bcl-2 reagent in stromal sarcoma. IHCh – Dab Chromagen. Ob10xOk40.

Immunohistochemical appearance: stromal sarcomatous transformed malignant tumor cells, cell polymorphism, many pathological mitotic observations and necrosis foci were found from the uterine body. Endometrial hyperplasia with angiomatous change, fibrous tissue in the stroma, and tissue polymorphism with myxomatous change are detected. The polymorphous cytoplasm of the cells is stained dark brown.



Diagrammatic representation of results obtained with the Bcl-2 reagent in stromal sarcoma No. 26

Conclusion.

Immunohistochemical studies of uterine mesenchymal tumors are performed to analyze various sarcomas.[6.2] This study is important for the purpose of identifying molecular structures in cells, studying cell localization, identifying prognostic factors of the disease, determining the stages of tumors and treatment tactics, dynamic monitoring and monitoring of the treatment process.[7.1]

The results obtained in all 26 selected patients with stromal sarcoma were evaluated as a percentage of Ki67 - a marker of proliferative activity of tumor cells. The results obtained were characterized by the staining of nuclear cells as follows: <10% low activity, 10-20% moderate activity, >20% high proliferative activity. These results were used to evaluate the prognostic factor of cancer in the form of mild, moderate and severe positive reaction. Of the 26 patients under observation, 6 (25%) had a moderate positive reaction and 17 (65%) had a high positive reaction. Low positive reaction was observed in 3 (10%). No negative reaction processes were observed.

In stromal sarcoma, the dark brown staining of the nuclei of tumor cells indicates the presence of Ki67 oxlin. In our studies, highly proliferatively active

cells were detected in 26 patients (65%). This showed that high proliferative activity of Ki67 protein in stromal sarcoma indicates an aggressive course of this tumor. In order to detect apoptosis, a tumor marker that regulates cell death by monitoring mitochondrial membrane permeability, Bcl-2 was used in 26 patients with uterine stromal sarcoma. The results were evaluated as mild, moderate, and severe positive reactions. A moderate positive reaction was detected in 9 (35%) of the 26 patients, a low positive reaction in 5 (20%) and a high positive reaction in 10 (45%) patients. The results of immunohistochemical examination showed that in all patients, the expression of VEGF, Ki67, and Bcl-2 monoclonal antibodies was studied. According to the results, in stromal sarcoma, monoclonal antibodies formed a high positive reaction in more than 10, that is, more than 50%.

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