

## ROLE OF MACROPHAGES IN CERVICAL CARCINOGENESIS

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**Introduction:** Any malignant tumor, in its evolution, is driven by a variety of biological events, acting sequentially and in a well orchestrated manner that will ultimately determine the acquisition of an aggressive phenotype by the tumor. It is widely accepted that molecular promoters of tumor transition from a preinvasive to an invasive state, derive from tumor mass itself and from stroma microenvironment as well. There is an increasing body of evidence that tumor associated macrophages (TAM) are directly involved in progression of different malignancies. Through a broad spectrum of molecular agents (cytokines, metalloproteinases, growth factors) TAM enhance tumor progression by cancer cell mobilization, intercellular matrix degrading, tumor angiogenesis and lymphangiogenesis, increasing of cancer cells invasiveness and metastasizing.

**Aims:** Studying of TAM densities and distribution within the different stages of uterine cervix neoplasia progression.

**Materials and methods:** It was studied material taken through biopsy or after hysterectomy from patients with macroscopically detectable lesions or operated for uterine cervix cancer respectively. In each case 3 µm thick serial sections were done. Histopathologic diagnosis was done using Haematoxylin Eosin staining. The following groups of lesions were obtained: CIN1 – 14 cases (n=14); CIN2 – 12; CIN3 – 24; microinvasive carcinoma – 15; invasive carcinoma – 32. Macrophages immunodetection was performed using anti-CD68 (monoclonal mouse antihuman clone PG-M1, Dako Denmark) LSAB+ technique, Avidin-Biotin working system. Prior to applying the primary antibody, endogenous peroxidase was blocked in sol. H<sub>2</sub>O<sub>2</sub> 3% for 5 min, and sections were heated for antigen retrieval up to 99°C in Retrieval Solution pH6 (Dako, Denmark) for 20 min. Time exposure for primary antibody was 30 min. DAB was used as a chromogen. Nuclear counterstaining was made with Lille's modified Haematoxylin. The entire IHC procedure was performed automatically at DakoAutostainer (Dako Glostrup Denmark). Macrophage quantification was made with Hot-Spot method. Statistical processing of data was done in SPSS 13.0 software, using bivariate correlation and non-parametric test, where  $p \leq 0.05$  was considered as statistically significant.

**Results:** It has been obtained a linear increasing of both peritumoral and intratumoral TAM densities during progression of cervical lesion severity ( $p < 0.001$ ). In all histopathologic groups density of peritumoral TAM (PTAM) was higher than the density of intratumoral TAM (ITAM) ( $p < 0.001$ ). In CIN1, the average of PTAM was 108.16, with a uniform distribution. ITAM (51.18) were mainly localized basal and suprabasal layers. In CIN2, PTAM (122.38) and ITAM (56.88) had a similar distribution with CIN1 stage. In CIN3, the number of PTAM (124.4) from the lamina propria was significantly higher than those from deep stroma, being predominantly arranged around vascular structures with small lumen. ITAM (103.7) were found throughout the whole thickness of stratified epithelium with a slight increasing in the basal part. In microinvasive carcinoma, PTAM (298.6) were arranged in clusters in the invasive front and around vessels. We noticed the tendency of macrophages to interplace among the endothelial cells of small vascular structures. ITAM (200) were organized in groups, localized in the invasive front. In invasive carcinoma, PTAM (413.6) formed clusters, placed around vessels and epithelial islands. In all 19 cases (59.38%) of vascular invasion, emboli had CD68+ cells inside. ITAM (322.8) were bigger than PTAM but with weaker cytoplasmic expression, being distributed uniformly within the tumor mass.

**Conclusions:** Strong association between histopathologic grade and TAM density, their arrangement in immediate vicinity with invasive front, integration among endothelial cells of vascular structures, presence inside the emboli strongly indicate on TAM involvement in uterine cervix neoplasia progression.

## RARE VARIANTS IN ANATOMY OF THE BRACHIAL ARTERY

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**Introduction:** Arteries are the structures that can vary greatly even in the body of the same person. About 20% of people have different variations in arteries branching and topography. Arteries of the upper extremity are the place of frequent surgical manipulations and diagnostic operations, therefore knowledge about the variant anatomy of vessels of upper extremity may be beneficial.

**Aims:** The aim of our study was to analyze types of branching that may occur in brachial artery in males and female of different age. Using macro and micropreparation we assessed anatomy of brachial artery in 10 fetuses and 20 adult cadavers (60-85 years) taken from the collection of the human anatomy department of the Grodno State Medical University.

**Results:** In 60% of cases in adults we found the classic type of branching, 20% had a high level of brachial bifurcation. Usually it occurs near the neck of the radial bone. In fetuses brachial artery had typical way in most cases. We described two types of its branching: magistral and loose. Sometimes the brachial artery is double; it has superficial and deep branches. A. brachialis superficialis is the branch of the axillary artery that usually is present on the median nerve as in most cases the brachial artery lies behind the nerve. The first who described the superficial brachial artery was Adachi. Keen who proposed that the superficial brachial artery is the radial artery that starts from the axillary artery. The brachial artery may run with the median nerve toward the medial epicondyle, where it may turn around, or beneath, a supracondylar process if present (2.7% of individuals, Gruber) and then descend to its normal position beneath the pronator teres. It may also pass through the pronator teres muscle where it may be entrapped and compromised. Variations in branching of brachial artery are typical in 20% of the population. This should be counted while performing medical procedures in this area.

**Key words:** anatomy, arteries, variations.

## CORRELATION OF PARAMETERS OF A. UTERINA WITH SOME ARTERIES OF THE HUMAN PELVIS

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**Introduction:** Diagnostic of human vascular system is an actual problem in medicine. Angiography of a. uterina with the purpose of diagnostics of pathological conditions is used in gynecology and surgery. However sometimes it is not possible to study a structure of a. uterina, therefore we have made attempts to establish the correlations of parameters of the artery with another artery of pelvis.

**Methods of research:** macromicropreparation, angiography, morphometry, statistical.