

10th Global Annual Oncologists Meeting

July 11-13, 2016 Cologne, Germany

Impairment of vascularization of the surface covering epithelium induces ischemia and promotes malignization: A new hypothesis of a possible mechanism of cancer pathogenesis

Apollon Karseladze

N. Blokhin Cancer Research Center, Russian Federation

Purpose: To study the peculiarities of vascularization at the stromal-epithelial interface in different types of epithelia and their alterations in precancerous lesions.

Material & Methods: Peritumoral tissues of 310 patients, tissues of 180 healthy persons and of 50 human embryos and fetuses have been taken. Traditional histological as well as immunohistochemical methods have been used.

Results: The study reveals that the occurrence of blood capillaries in surface squamous epithelium is an ordinary event, both in healthy persons and in peritumoral regions of the patients with squamous cell carcinoma. As soon as precancerous dysplastic alterations start and progress the number of intraepithelial blood vessels simultaneously decreases, thus leading to ischemia which precedes or promotes malignization of the covering squamous epithelium. To compensate for the deficit in blood supply, the dysplastic cells penetrate deeper into the underlying stroma, commencing invasion. Thus, the cells destroy the subjacent stroma not because they are initially “malignant”, but due to ischemia which provokes the search for nutrients. Glandular epithelial coverings, (e.g. respiratory epithelium) do not contain blood vessels, since each cell is attached directly to the basal membrane and has more ample access to the blood supply. In squamous epithelium, only basal cells are in contact with the membrane and underlying stroma, the cells of the upper layer receiving nutrients through diffusion. Thus the cells of squamous epithelium are more vulnerable to blood deficiency. Metaplastic squamous epithelium has a markedly reduced vascularization and seems to be more sensitive to carcinogenic stimuli. High-grade dysplastic squamous epithelium and carcinoma in situ do not contain blood vessels at all. Furthermore, the specific composition of basal membrane for each type of epithelium may regulate the ingrowth of blood capillaries into surface linings.

Conclusion: The process of redistribution of vascular network occurring at the interface of epithelial- stromal frontier plays an important role in maintaining the adequate metabolism of cells including those of epithelial covering. Impairment of this mechanism most probably promotes precancerous alterations (dysplasia).

Biography

Apollon Karseladze, is a full professor of Pathology, Head of the Department of Pathology in the Russian Cancer Research Center, Moscow. After finishing Medical Faculty in 1970, he continued his residency in Pathology (1970-1975). He got his PhD in 1975 (dissertation “Morphometric peculiarities of reticular cells in Hodgkin disease”). During 1976-1979, He served as a Junior Researcher in the Department of Pathology of Russian Cancer Research Center, Moscow and during 1979-1994 served as Senior Researcher in the Department of Pathology Moscow Herzen Oncological Research Institute. From 1994 to 2006, he served as Leading Researcher in the Department of Pathology, Russian Oncological Research Center. From 2006 till date, he is serving as the Head of the same department.

kuchiani@hotmail.com

Notes: