Gaspar Bánfalvi, J Cancer Sci Ther 2016, 8:11(Suppl)
http://dx.doi.org/10.4172/1948-5956.C1.090

Metastatic spread of abdominal tumors to thoracal and mammary lymph nodes

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Tumor cell lines have been established in our department to follow the pattern of metastasis formation in rats. Tumor progression could be traced reliably by orthotopic implantation of tumor cells in peritoneal (liver) and retroperitoneal (kidney) organs. Upon abdominal primary tumor formation, the tumor cell population exhibited markedly similar abilities characterized by: tumor cells originating from peripheral ruptures of blood vessels near the surface of the primary tumors were shed into the abdominal cavity; tumor cells released in the abdomen crossed the stomata of the diaphragm; tumor cells accumulated in thoracal, primarily in parathymic (internal mammary) lymph nodes and; after exhausting the defense capacity of the parathymic lymph nodes, the metastatic migration continued in the superior thoracal lymph node chain where the chyle returned to the vascular system. Colloidal carbon particles injected into the peritoneal cavity mimicked faithfully the migration of tumor cells. The direct lymphatic connection and migration of abdominal tumors cells to thoracal lymph nodes provided an explanation for the origin of thoracal and breast cancer metastasis. It is assumed that metastasis associated with the poor prognosis in breast cancer patients is related to the lack of knowledge of thoracal spread of tumor cells from abdominal primary tumors.

Biography

Gaspar Banfalvi studied Pharmacy and completed his Doctorate in Szeged (1972), spent two years at the Institute for Drug Research in Budapest (1972-1974). He completed his Degrees (CSc, DSc and Med Habil) at the Department of Medical Chemistry, Budapest (1974-2000). He held the position of Chair in the Department of Biology at University of Debrecen (2000-2005). He teaches Medical Chemistry, Biochemistry, Cell Biology, Genetics and Physiology. He visited: for four years BBRI-Harvard Medical, Boston, six months Harvard University, five months Leiden, six months NCTR, Jefferson, AR and eight months Weizmann Institute. His topic of research is on “DNA structure, function, genotoxicity and metastasis”.

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