

**THREE-DIMENSIONAL CHANGES IN LYMPHATIC  
ARCHITECTURE AROUND VX2 TONGUE CANCER  
– DYNAMICS OF GROWTH OF CANCER –**

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*ABSTRACT*

*Many questions remain regarding the mechanism of cervical lymph node metastasis via lymphatic vessels. We report here the three-dimensional dynamics of the lymphatic architecture around tumor during growth of implanted VX2 tongue cancer.*

*The tongue and the deep cervical lymph nodes of rabbits were observed at 3, 7 and 10 days after transplantation of VX2 cancer cells (n=5 in each group). Lymph node metastasis was confirmed histopathologically. Morphological changes of the collecting lymphatic vessels and lymphatic capillaries were observed, and the number and diameter of these lymphatic vessels were measured within 500  $\mu$ m around the tumor using the combined method of 5'-nucleotidase (5'-Nase) staining and three-dimensional reconstruction imaging.*

*The VX2 cells were uniformly detected in cervical lymph nodes of each rabbit of the 10-day group. The number of lymphatic capillaries and the diameters of collecting lymphatic vessels around the tumor in the 7- and 10-day groups were greater than in the 3-day group. These capillaries arose by sprouting from preexisting lymphatic vessels and showed a tree-like branching pattern.*

*We conclude that the dynamics of the lymphatic architecture around the tumor, especially the increase in number of capillaries on preexisting lymphatic vessels outside the tumor margin, may be associated with lymph node metastasis.*