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Hypoxia-induced tumour cell migration in an in vivo chicken model.

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To investigate the relationship between hypoxia, neovascularisation and tumour cell spread, experiments on the area vasculosa of the early chick embryo under different oxygen concentrations were performed in vivo. Human glioblastoma cells (U-138MG) were inoculated onto the area vasculosa and the fertilised eggs were incubated under conditions of normoxia or hypoxia. For evaluation, we performed in vivo video-microscopy of the area vasculosa and determination of microvessel density (MVD), as well as a histological examination of the fixed specimen. Under hypoxia, MVD was significantly increased compared to normoxic conditions. Only under hypoxic conditions was tumour cell spread found outside the main tumour mass and within the vessels, at times followed by the subsequent development of secondary tumour cell bulks on the area vasculosa. These data lead to the conclusion that hypoxia can stimulate tumour cell migration in this in vivo model. Copyright 2001 S. Karger AG, Basel

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