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1: [Neurol Med Chir \(Tokyo\)](#). 2009 Apr;49(4):146-50; discussion 150-1.



Brain tumor stem cells from an adenoid glioblastoma multiforme.

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Brain tumors may arise from and contain cancer stem cells (CSCs) capable of self-renewal, proliferation, and differentiation that recapitulate the parent tumor. These CSCs are thought to be important in gliomagenesis. Detection of CSCs invading the adjacent brain regions is important for the diagnosis and effective treatment of glioblastoma multiforme (GBM). A 57-year-old man presented with an adenoid GBM, and underwent resection of the tumor. Multipotent, self-renewing cells derived from the human adenoid GBM were isolated and identified with the tumor-derived stem cell surface antigen CD133 from whole autopsied patient's brain. Tumorsphere culture and flow cytometric analysis revealed that 1.02-2.32% of the cells were positive for CD133. Transplantation of cultured tumorspheres into the mice brain resulted in the formation of well-defined tumor masses after 12 weeks. The histological and immunohistochemical characteristics of the xenograft were identical to those of the parent tumor. Examination of the patient's brain at autopsy showed CD133-positive cells were identified in the brain regions adjacent to the tumor, suggesting that CD133-positive CSCs might be localized to the vascular niche. Methods to localize CSCs may open new approaches for the treatment of brain tumors.

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