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ONLINE ISSN : 1349-8029

PRINT ISSN : 0470-8105

Neurologia medico-chirurgica

Vol. 48 (2008) , No. 7 307-310

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Pathological Laughter Caused by Frontal Glioblastoma —Case Report—

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(Received November 16, 2007)

(Accepted March 3, 2008)

Abstract

A 60-year-old, right-handed female presented with episodes of pathological laughter and left hemiparesis. She had no history of traumatic brain injury, or neurological or psychiatric disease, and showed no signs of drug or alcohol abuse. Neurological examination found moderate left hemiparesis. Her face was symmetrical with intact emotional expression. The episodes of pathological laughter had become more frequent during the 3 months since the onset of hemiparesis, were elicited by non-specific, trivial stimuli, and lasted for a few minutes until she gained some control. Her personal and social behavior was entirely appropriate except for the outbursts of laughter. Cerebral magnetic resonance (MR) imaging revealed a 2.5 × 2.5 × 3 cm ring-enhanced mass in the subcortical area of the right frontal lobe associated with extensive perifocal brain edema. The hypothalamus, thalamus, internal capsule, brainstem, and cerebellum were unaffected. Functional MR imaging showed the tumor located mainly in the prefrontal area with the posterior limit involving the premotor cortex. She underwent total tumor resection. The histological diagnosis was glioblastoma multiforme. The pathological laughter and hemiparesis resolved within 2 weeks after surgery. Invasive tumor in the frontal lobe involving the prefrontal cortex and subcortical structure may cause pathological laughter, and can be cured by surgery.

Key words: pathological laughter, functional anatomy, glioblastoma

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To cite this article:

Satoshi TSUTSUMI, Yukimasa YASUMOTO and Masanori ITO; "Pathological Laughter Caused by Frontal Glioblastoma", *Neurologia medico-chirurgica*, Vol. **48**, pp.307-310 (2008) .

doi:10.2176/nmc.48.307

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