Natural history of de novo High Grade Glioma: first description of growth parabola.

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Abstract
Etiopathogenesis and physiopathology of gliomas are largely unknown. Recently, many authors have proved a strict correlation between the velocity of diametric expansion (VDE) on the Magnetic Resonance Imaging (MRI) and the biological behavior of these tumors, especially in Low Grade Gliomas (LGGs). Unfortunately, natural history of High Grade Gliomas (HGGs) has not been well clarified because of its fast progression, late diagnoses and early surgical intervention. We describe, for the first time to our knowledge, the case of asymptomatic patient with an incidentally discovered de novo HGG with a total of 17 months of follow-up. A male patient was referred to our consultation for routinely follow-up after meningioma resection 5 years before. He underwent MRI every year without any neuroradiological alterations. A new MRI image presented a non-enhancing lesion in the right temporal lobe with 3.55 cm of Mean Tumor Diameter (MTD) and 35.6 mm/year of VDE. After two months interval, the lesion had 3.97 cm of MTD and 27.8 mm/year of VDE. Although we have strongly suggested surgical resection, patient have delayed the operation for personal issues. After other 3 months, the tumor showed enhancement with 4.5 of MTD and 17.4 mm/year of VDE. We speculate that the descending parabola is due to initial mass effect and hypoxia of the tumor core. We also underline the crucial role of the VDE determining, in order to predict the nature of the lesion and address the most effective treatment for each patient.

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