Ann Neurol. 2010 Nov;68(5):727-33.

Natural history of incidental world health organization grade II gliomas.

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Abstract

OBJECTIVE: Seizure is the presenting symptom in most of World Health Organization grade II gliomas (GIIGs). Rarely, a GIIG is discovered incidentally on imaging. Little is known about the natural course and prognosis of incidental GIIGs. The aim of the present study is to characterize their natural history and to investigate whether their clinical and radiological behaviors differ from those of symptomatic GIIGs.

METHODS: The clinical and radiological findings, treatments, and outcomes of 47 histologically-proven incidental GIIGs were compared with those of 1249 symptomatic GIIGs.

RESULTS: Incidental GIIGs differ significantly from symptomatic GIIGs: they have a female predominance ($p = 0.05$), smaller initial tumor volumes ($p < 0.001$), lower incidence of contrast enhancement ($p = 0.009$), and are more likely to undergo gross total surgical removal ($p < 0.001$). Proliferation rates were similar to that observed among symptomatic GIIGs. Younger age at the time of discovery, frontal lobes, and noneloquent brain regions were associated with incidental GIIGs, as compared to their symptomatic counterparts. When not treated, incidental GIIGs demonstrated radiological growth (median velocity of diametric expansion at 3.5 mm/year), and became symptomatic at a median interval of 48 months after radiological discovery. Overall, incidental discovery was associated with a significant survival benefit ($p = 0.04$).

INTERPRETATION: Incidental GIIGs are progressive tumors leading to clinical transformation toward symptomatic GIIGs. They may represent an earlier step in the natural history of a glioma than the symptomatic GIIGs. ANN NEUROL 2010;68:727-733.

PMID: 21031584 [PubMed - in process]